Flow

THE MAGAZINE OF MODERN MATERIAL HANDLING AND PACKAGING METHODS

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The Third
National
Material
Handling
Exposition
January 10-14, 1949

IN THIS ISSUE:

Scrap Handling . . . Financing Equipment . . .
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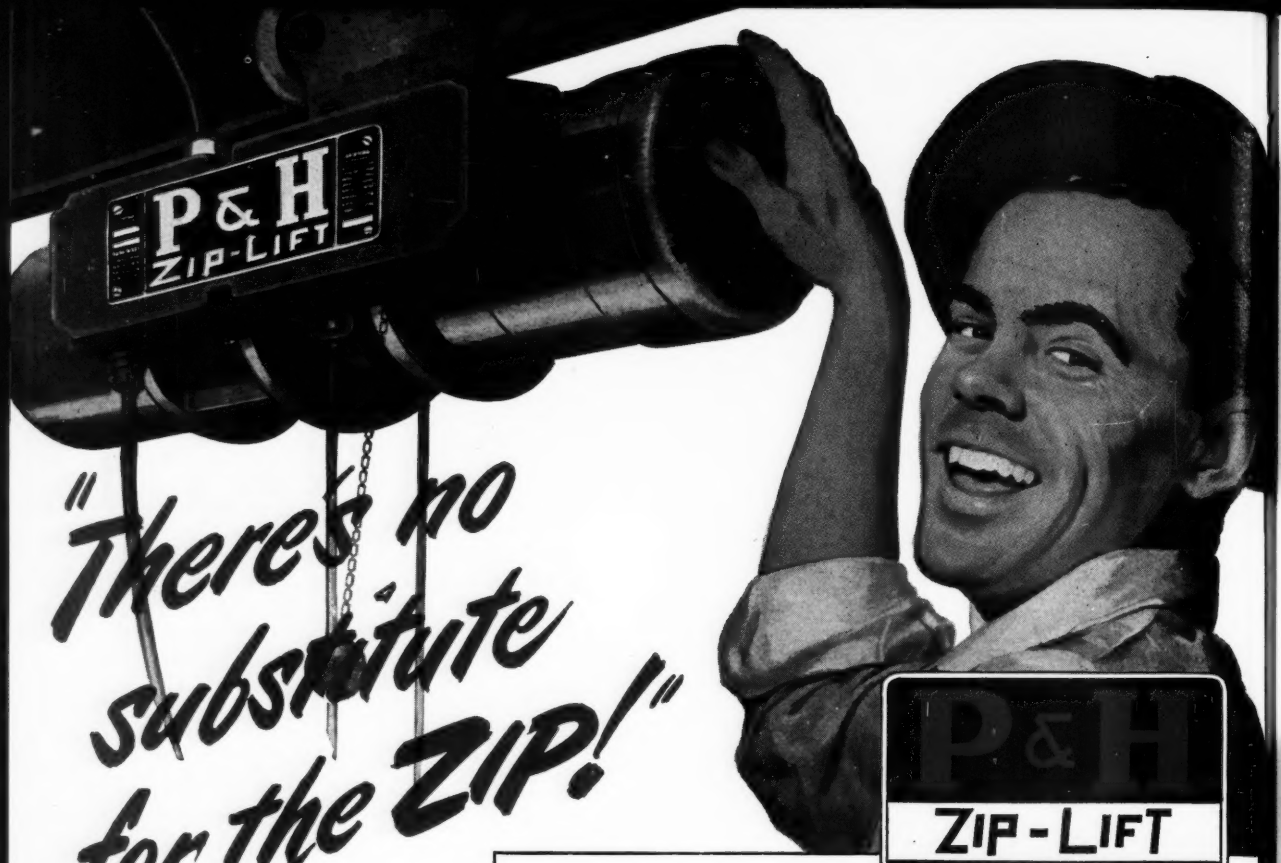

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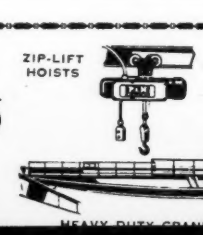
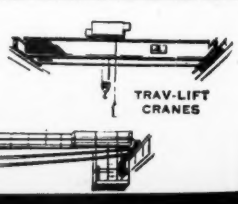

ZIP-LIFT HOISTS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BOOTH 337

MATERIALS HANDLING EXPOSITION

presents

The LOAD DISPATCHER

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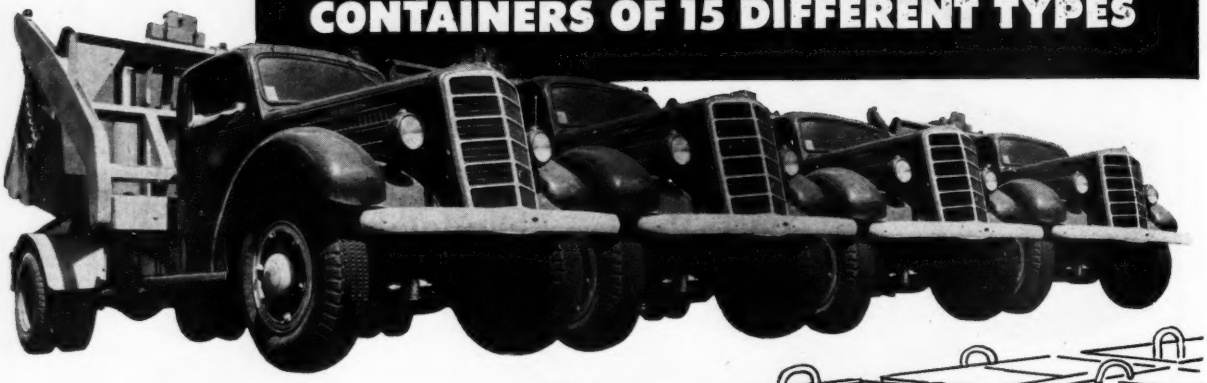
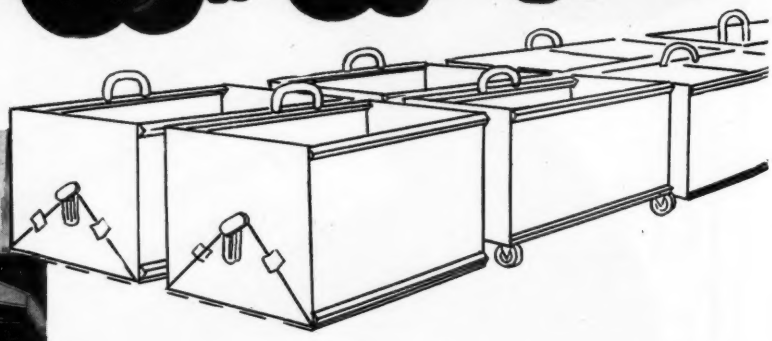
THESE FOUR TRUCKS HANDLE 88 CONTAINERS OF 15 DIFFERENT TYPES





Like many industrial operations, this refinery extends over many acres and handles great quantities of materials, in addition to hundreds of cubic yards of scrap and rubbish daily. Choosing strategic points for receiving material, the 88 containers were placed throughout the refinery, the requirements at each point determining the size and number of containers to be used. At some points for liquid, water-tight containers with lids were required. At others, light, bulky waste called for a big capacity, light-weight enclosed container. Some accumulation points were inside buildings. Containers on casters that could easily be rolled indoors were provided. Each container is assigned to one of the four truck hoisting units and, on a synchronized schedule, is picked up as soon as it is filled. Photos at left show: top-truck hoisting unit backing up to a 6 cu. yd. Universal container. The driver attaches two chains, and then, from controls in the cab, the container is hydraulically lifted into carrying position (see photo at left center). Arriving at the disposal area, the container is automatically dumped (see photo left below). The container is then returned to its original point for reloading and the truck hoisting unit moves on to the next container on its route. Pick-up and dumping operations require only a matter of seconds, thus it is possible for one man and one truck to handle any number of containers, keeping a steady flow of material moving without waiting or wasting time.

On opposite page are illustrated the types of containers in the original installation and the materials they handle. Note how easily the basic Dempster-Dumpster containers are converted for special purposes by the simple addition of lids, casters or some other special change.

The Dempster-Dumpster system is saving money in large and small plants alike. Its great flexibility makes it adaptable to any plant, regardless of size, and assures tremendous savings along with amazing improvements in efficiency. A survey of your plant, without charge or obligation, could reveal the amazing effectiveness of the Dempster-Dumpster System.

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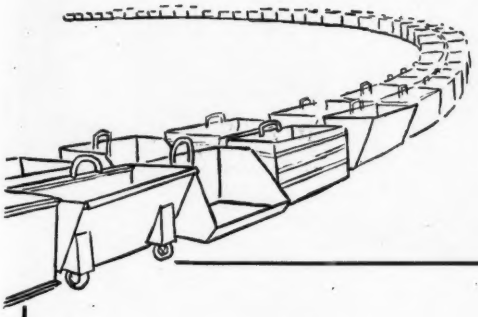
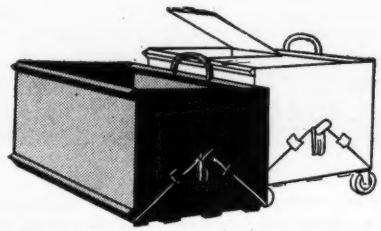
. . . SAVES THIS REFINERY $58,000 ANNUALLY

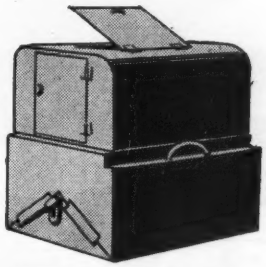
The Dempster-Dumpster System of Materials Handling, simply stated, permits the use of any required number of detachable containers, of various designs and capacities, to be serviced by a single truck. Its ability to effect tremendous savings in handling numerous types of materials has been definitely established in hundreds of leading industrial plants.



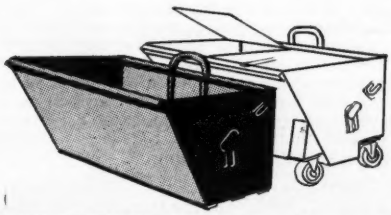
In this particular case, in a large refinery, four of the twelve trucks formerly detailed for materials handling, including scrap and rubbish collection, were equipped with Dempster-Dumpster Hoisting units to handle 88 detachable containers of 15 different types. The Dempster-Dumpster System of quick pick-up and dumping of pre-loaded containers has worked wonders in efficiency, plant appearance, and savings. In one year savings of over $58,000 was shown by our engineers survey. Time has proved the correctness of this survey. Since the original order of 88 containers, so many more uses for the equipment and greater savings were discovered that 55 additional containers have been placed in service with a grand total of 143 containers now being handled by the four trucks.



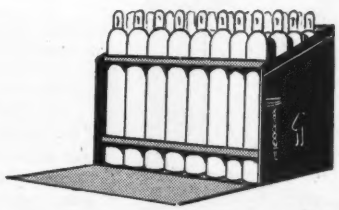
DROP BOTTOM CONTAINERS. 48 drop-bottom containers were furnished for handling trash and rubbish, steel turnings, scrap metal, tube ends and clay:—Twenty 6 cu. yd. open top type, one 6 cu. yd. with lids, nine 2½ cu. yd. open top type, two 2½ cu. yd. open top with casters, six 3 cu. yd. open top, nine 4 cu. yd. with lids, one 4 cu. yd. enclosed with hinged door in top.



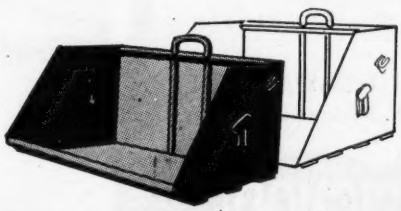
UNIVERSAL CONTAINERS. 13 universal containers were furnished for handling trash and rubbish. Universal containers feature completely enclosed construction, drop-bottom dumping, a door in either end for ground-level loading and a lid in the top for loading from a platform.



TILT TYPE CONTAINERS. 16 tilt type containers were furnished for handling general refuse, sludge and settlings:—Four 3 cu. yd. open top type, nine 3 cu. yd. with lids, three 3 cu. yd. with lids and casters.



SPECIAL CONTAINERS. 3 special containers were furnished for handling and transporting oxygen cylinders from one point to another in the refinery. This container is typical of the many highly specialized uses for which Dempster-Dumpster containers are constructed. Many other containers are available for handling almost any type of material known, be they liquid, dust, light or bulky or very heavy materials.



SKIP TYPE CONTAINERS. 7 skip type containers were furnished for handling refuse wax, oil, lube and coal:—Three 3 cu. yd. skip type with lid, three 3 cu. yd. skip type without lid, one 3 cu. yd. skip type with teeth.

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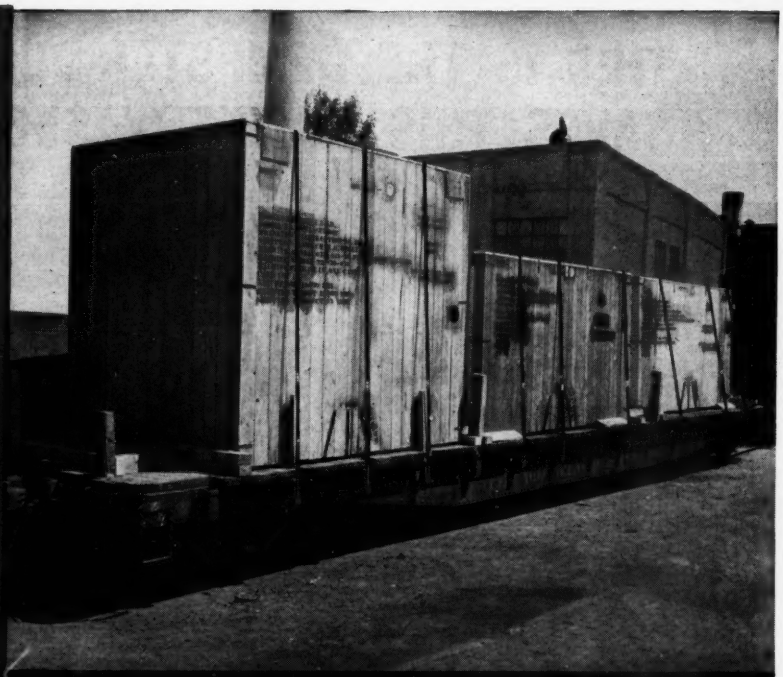

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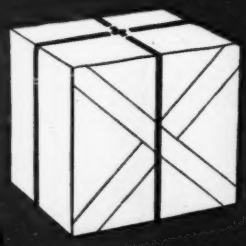

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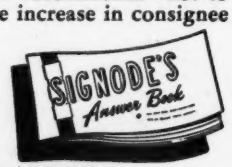

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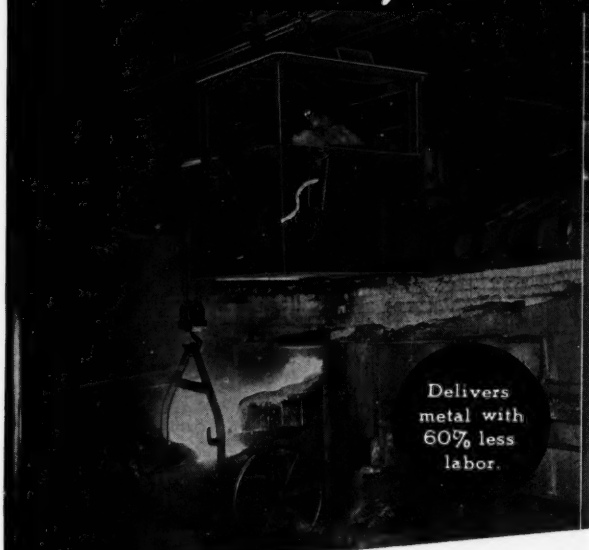

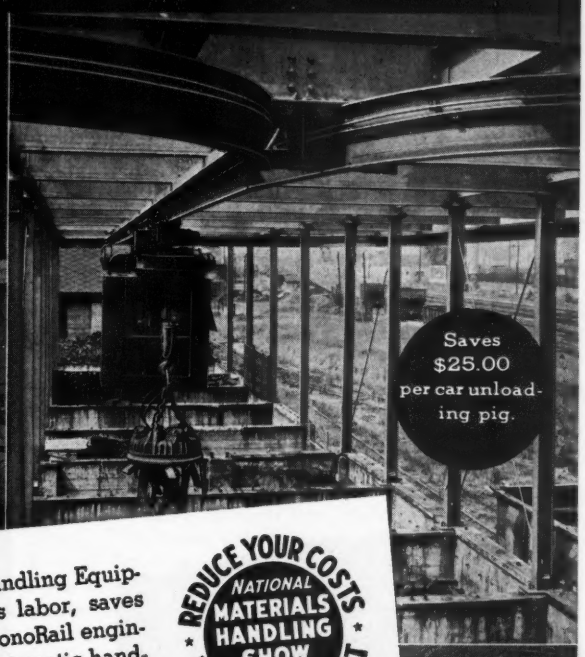

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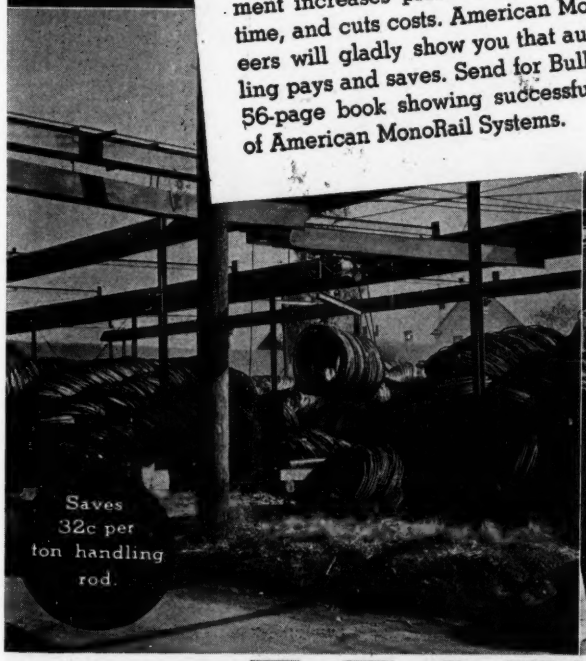

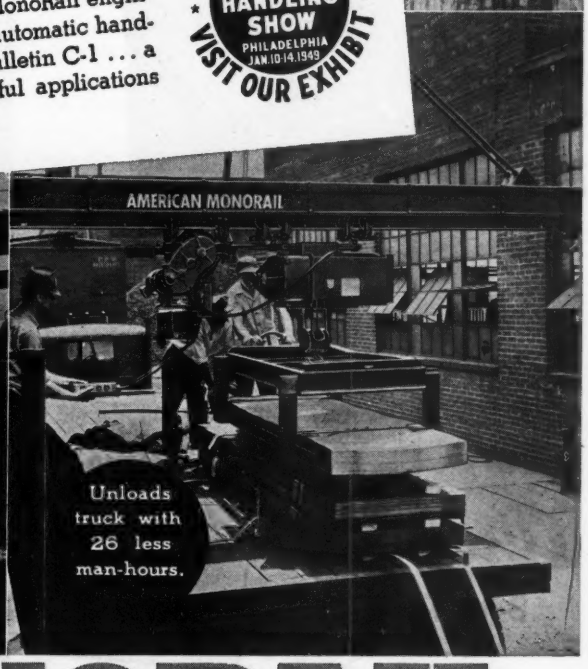

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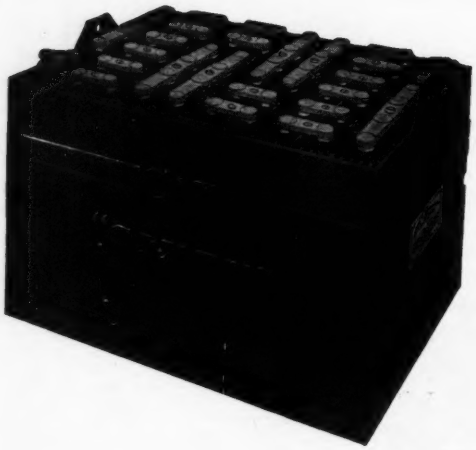

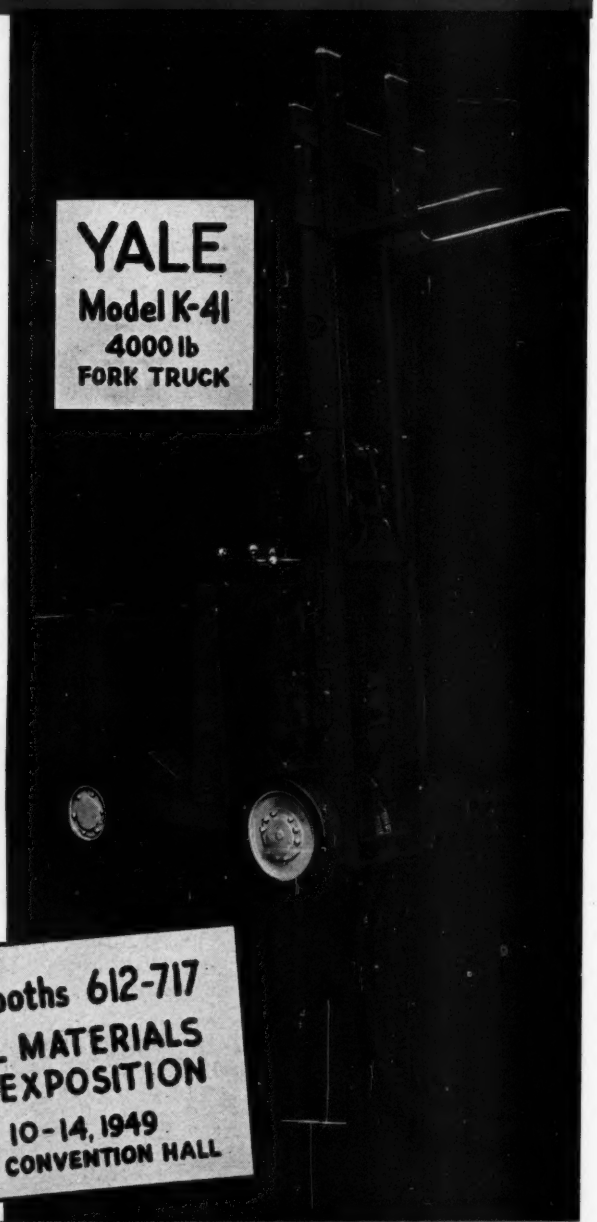

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LET'S BE SELFISH

REGARDLESS of what your politics are, you will probably join with the rest of America and agree that Mr. Dewey's surprise defeat was due to overconfidence. His advisers, the polls of public opinion, the newspapers and all the rest of the experts gave Mr. Dewey the election before he won it. He was lulled into complacence by these false prophets and lost the presidency. He took too much for granted.

As a people, we take too much for granted the blessings of our country. It should scare the pants off us when Communists can take into their camp a man who should be one of our nation's leaders, or when Communists can actually place their members in high governmental places, or when Communists can get some of our government officials to carry on their nefarious work for them. It is time for us to wake up and look around.

It is time that we became suspicious of the organizations with the high-sounding patriotic names. We are so childish we think that any organization with a fine name really means to live up to it. We are not used to the man who offers us the millenium. We think he can actually deliver it to us. Let's be suspicious. Let's be selfish. Let's not be taken in by honeyed words.

What do these people offer us? Freedom. We have more freedom than their beloved Russia ever knew about in its whole history. They know only the police state. They don't even begin to understand our kind of freedom, which arises from the dignity of the individual. They don't understand the kind of freedom which permits a man to work where he pleases and quit that place if he pleases. They don't understand what it means for us to be able to say and do anything that pops into our heads, singly or collectively. They don't understand what it is to be able to worship as we choose, to live where and as we want, to go and come as we want with no interference from the State.

They want to give US freedom? Bunk. We could give them plenty of ours and still have some left over.

What else do these people offer us? Democracy. It's sand in your eyes. They don't know what Democracy is. They know the police state. They know the one-party ballot. Vote their way—or off comes your head. They never saw a Mr. Truman and Mr. Dewey run for our highest office, have only a couple of million votes separate them, and then see this country unite behind the winner to make America function just as though their very own candidate had won. They don't understand this.

They say we are weak and decadent. They don't know that our strength comes from our people. Their strength comes from a government centered in the hands of a few. Ours comes from the 150 millions of people who ARE America.

These are things we must treat selfishly. Let's not lose our birthrights. Let's keep these things. Let's not allow anyone to take them away. Let's guard them as we would our most valuable possession, because that's what they are.

Let's be selfish. Without these rights to freedom, our families, our work, our money, our jobs, our houses and all our possessions amount to nothing. With them, we Americans are the blessed people of the earth.

Irving B. Hexter

Get Set

NATIONAL MATERIAL HA

THAT material handling is of great importance to top management is borne out by the rapid growth of the Material Handling Exposition, which in two years has become one of the largest annual industrial shows in the country.

At its inception in 1947, the exposition listed 97 exhibitors and attracted approximately 8000 visitors. Last year it was visited by 15,000 persons, and exposition headquarters has received registrations for over 200 exhibitors in 1949, with a complete sellout expected by show time. The 1949 edition will be held at Convention Hall, Philadelphia, January 10-14.

This year the show will be jointly sponsored by the management and material handling divisions of the American Society of Mechanical Engineers and the Material Handling Institute. It is the first time that a show of this type has been sponsored by the manufacturers of handling equipment as well as the users. The visitors themselves will take over and run the ASME conducted five-day conference on material handling which will be held concurrently with the Exposition. A material handling theatre will exhibit late films on handling subjects. The annual banquet is scheduled for Wednesday, January 12.

Latest in Handling Equipment

Among the many types of equipment to be exhibited will be hand trucks in dozens of designs and for a variety of applications, lift trucks in many models, conveyors, hoists, monorail equipment, portable elevators, stacking units, cranes, tractors, trailers, skids and pallets, and their respective accessories. Many new items will be shown to the industry for the first time at the show.

Serving as co-chairmen of the technical program

THESE COMPANIES ARE

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Aeroquip Corp. 610
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Alvey Conveyor Mfg. Co. 202, 203
The Alvey Ferguson Co. 142
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American Monorail Co. 326, 327
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For The THIRD

HANDLING EXPOSITION

committee for ASME are Curtis H. Barker Jr., vice president, Pallet Sales Co., and national chairman of the material handling division; and Professor W. R. Mullee, department of administrative engineering, New York University, national chairman of the ASME management division. Other committee members include Harry C. Keller, Lamson Corp.; Jervis B. Webb, Jervis B. Webb Co.; Bernard Lester; Nelson L. Davis, Nelson L. Davis Co.; J. Keith Louden, York Corp.; G. M. Varga, A. Schrader's Son; Harold B. Maynard, Methods Engineering Council; and E. H. MacNiece, Johnson & Johnson.

On the exposition committee for the Material Handling Institute are S. W. Gibb, Yale & Towne Mfg. Co.; H. A. Carter, Geneva Metal Wheel Co.; Lloyd C. Backart, Rapids Standard Co.; W. Van C. Brandt, Electric Storage Battery Co.; John G. Bucuss, Acme Steel Co.; J. H. W. Conklin, Clark Trucktractor division, Clark Equipment Co.; L. J. Kline, Mercury Mfg. Co.; L. E. Nivling, Lewis-Shepard Products, Inc.; W. G. Reycroft, Bassick Co;. Frank F. Seaman, Robbins and Meyers, Inc.; L. West Shea, Union Metal Mfg. Co.; W. C. Stuebing, Sr., Lift Trucks, Inc.; and J. Faulkner Thomas, Thomas Truck and Caster Co.

Information concerning the Exposition, exhibit space, programs and advance registration may be obtained from the show management: Clapp & Poliak, Inc., 350 Fifth Ave., New York 1, N. Y. Banner & Greif, 250 West 57th St., New York 19, N. Y., will handle the show's publicity. Hotel reservations may be obtained through the secretary, housing bureau, Material Handling Show, 17th and Sansone, Philadelphia 3, Pa.

So make plans now. Get set for the third.

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Lyon-Raymond Corp. 710, 711

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How to finance equipment purchases

By E. T. NEVILLE

Vice President and National Sales Director
of the C.I.T. Corporation,
Sponsors of the C.I.T. Equipment Financing
Plan

Cost of purchasing material handling equipment can be spread over extended periods. This article explains the simple mechanics of financing. Several arrangements are possible.

MANY industrial plants have postponed well-advised improvement programs because of the cost involved, feeling that they could not afford to make the heavy inroads on their working capital which the plans involved. However, there is a helpful answer to such problems and this article attempts to point out how concerns can arrange financing so that equipment costs can be amortized over many months.

Current trends in the construction of industrial buildings call for broad aisles, wide bays and carefully planned manufacturing, storage and shipping space. Such arrangements naturally lend themselves to the best use of materials handling equipment and assure a steady flow of supplies to assembly lines plus the efficient and economical storage and shipment of finished merchandise.

Operating Savings Repay Investment

However, many concerns occupy space in buildings which are far from new and which lack modern facilities. Narrow aisles, awkward columns and cramped quarters often make the intra-plant movement of raw materials, fabricated parts and finished products difficult. It is usually feasible to better such conditions through careful planning and, when suitable handling equipment can be used to accelerate the movement of materials, a definite improvement in all phases of production can be attained.

Actually, the *cost* of acquiring material handling equipment is of secondary importance because the operating savings that can be quickly effected will more than offset the investment in a very short time.

Improved plant arrangement and modern handling methods provide the opportunity to put this highly specialized labor-aiding equipment to maximum use. When these three factors are combined, it is probable that in no other field of industrial application can such a sharp savings be shown.

In view of the important—and immediate—savings made possible through the application of modern handling methods, it would seem to be a sensible procedure for industrial plants interested in increasing their efficiency, to consider plans which speed up the handling of their product at every stage, ranging from raw materials to storage of finished goods and shipping.

Plant alterations may be necessary to overcome some of the handicaps, or the desired results can sometimes be obtained by the rearrangement of existing space. In any event, the benefits to be expected are so tangible that proper preparation is advisable; the material handling equipment can produce the cost-saving results for which it was designed.

Handling equipment, as such, is designed to perform many different tasks which reduce industrial costs. The list of models, types and uses of equipment is long and each prospective user should keep his own requirements and facilities well in mind when considering their acquisition. Power-driven units as well as hand-operated types serve many purposes, both in indoor and outdoor operations. The selection

of proper attachments often increases the efficiency of equipment, contributing to economical operations.

When a properly engineered handling method and a plan for adequate plant ararngement have been decided upon, it is a relatively simple matter to select the various types of equipment needed to complete the system. It is this phase of the improvement program that can be readily financed so that the purchaser can spread payments for equipment over such periods of time as are best suited to his needs.

Two Simple Loan Procedures

Financing organizations are prepared to devise plans, covering the time payment purchase of equipment, which can be tailored to fit specific needs and conditions. The knowledge that such financing can be arranged—usually on a monthly payment basis—makes it feasible for concerns to forecast with reasonable accuracy their equipment needs in the foreseeable future. They can also estimate the approximate dollar savings which the new equipment will provide and plan accordingly to make the purchase out of anticipated income.

Two simple financing procedures are available to those purchasers who desire to conserve working funds. They can either ask the manufacturer or distributor from whom they make their purchase for credit terms or, can make application to a financing organization for an equipment loan. Some organizations specialize in this type of credit accommodation by making their resources and credit facilities available to *either* the buyer or seller.

In serving the buyer, financing organizations usually agree to furnish the money needed to complete the purchase. In the second instance, they buy the purchaser's installment paper from the seller and thus turn a time payment sale into a cash transaction. In either case, the end result is the same. The purchaser has sought, and can obtain, ample time in which to liquidate the obligation and, by furnishing money to either party, the financing organization helps consummate the sale by forming a connecting link between buyer and seller.

Material handling equipment is financed on generally uniform terms. A down payment averaging 25% is required and the unpaid balance can then be liquidated through a series of monthly payments running from one year upwards. The reasonable cost of this financing is met by the purchaser and is based upon the number of months required to retire the obligation.

Several Sources, One Obligation

Frequently, a concern finds that the equipment needed to round out an improvement program must be purchased from several sources. When this situation occurs, some financing organizations know how to work out an arrangement whereby all purchases can be combined in one obligation and liquidated through single monthly payments. This convenient method of handling several transactions simultaneously has been very helpful to many concerns by making their planning for immediate and future equipment needs easier to calculate.

To the buyer who hesitates to embark on an improvement program because of the cost involved or the anticipated strain on working funds, the opportunity to make his purchases out of income goes a long way toward solving the problem. Equipment can be acquired by making only a moderate initial investment and an analysis of its business prospects should readily determine how a firm can budget their income to meet the required installment payments.

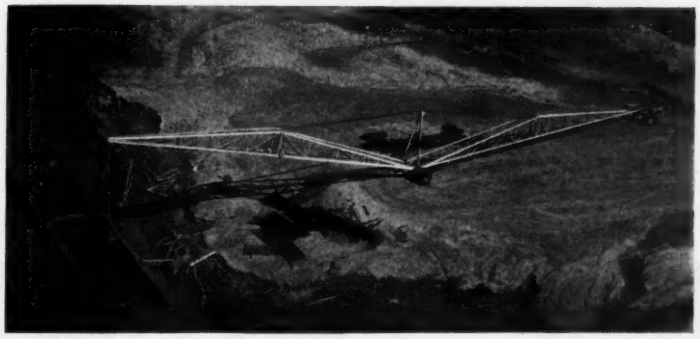
The main advantage of paying for equipment out of income lies in the fact that the purchase will not impair working capital and plant operations will continue without risk of a slow-down due to lack of sufficient cash. This is important at all times in view of the heavy demands for funds to meet pay rolls, pay taxes, buy supplies and take care of the many different items which make up the cost of doing business.

A Profitable Investment

A situation along these lines would occur where a concern felt that the installation of a modern material handling system would increase their output and enable them to earn larger profits. On the other hand, their capital structure would not permit them to withdraw the money necessary to purchase

(Turn to page 67)

CRANE REPLACES DOCK



***Yes, this is a crane, a special design developed to unload river barges where a suitable dock or wharf does not exist. It has a lift and reach of 150 feet and a rated capacity of 25 tons. It has also been used for the erection of steel in building construction and many other places where high lift and big capacity were required.—Courtesy,* R. G. LeTourneau, Inc., Longview, Tex.**

Fig. 2. OVERHEAD CONVEYOR transports finished shoes from final inspection up three floors to another building and storage.

IN THE SHOE INDUSTRY, TOO, IT'S . . .

Improved Flow for Lower Handling Cost

By G. B. CARSON

Manager of Engineering
The Selby Shoe Company
Portsmouth, Ohio

UNLIKE most industries, shoe industry operation is virtually a custom building program on a manufacturing basis. In many of the larger shoe plants orders are taken directly from the retailer and are made up in sizes and styles accordingly. The quantity of the orders varies, as does the distribution of sizes. In fact, mathematical computations which take into account all of the variables, indicate that there are more than one million possible combinations for manufacturing shoes on today's standards.

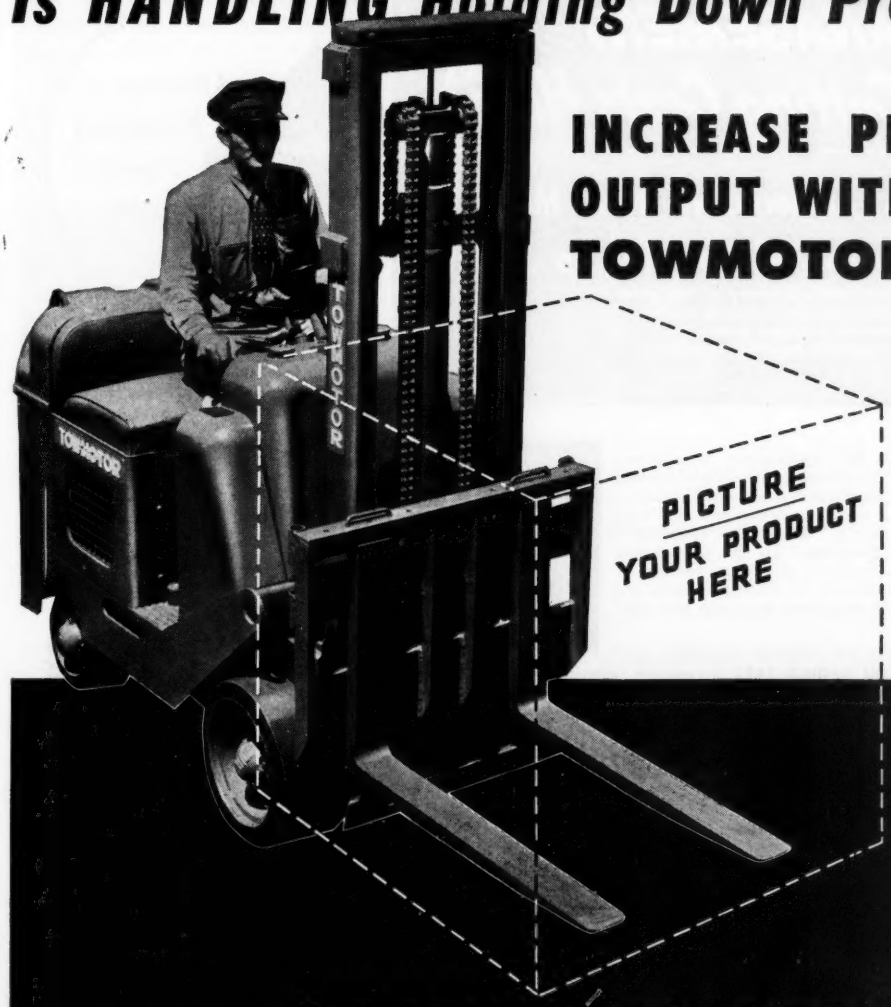
This tremendous number of combinations accentuates the problem of effecting extreme flexibility, and at the same time maintaining low handling costs. While the shoe industry still has a long way to go in solving its handling problems, the examples which follow will show some of the recent developments toward this end.

Castered Racks for in Process Handling

Because of the complex problem of identifying each customer's order, together with its particular sizes and style specifications, shoes are manufactured in case lots, each case being assigned to a definite customer. When the order starts through the plant, all of the component parts that are later to be assembled must ride or be identified

Fig. 1. CASTERED RACKS are used for transporting whole lots of shoes through processing.

Is HANDLING Holding Down Production?



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*MH is Mass Handling, the systematic movement of the most units, in the shortest time, at the lowest cost.

See Our Exhibit—
3rd National Materials Handling Exposition, Philadelphia Convention Hall, Jan. 10-14, 1949.

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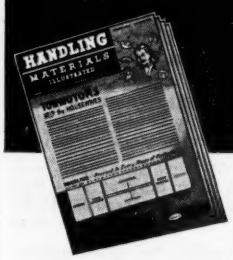
Towmotor Fork Lift Trucks, Tractors and Accessories are designed for fast, safe handling of materials and products of every type, size and shape. Gasoline-powered to stay on the job twenty-four hours a day, every day . . . available in models and capacities to meet the needs of every plant in every industry. Towmotor is the answer to your handling problem.

The cost of Towmotor operation? The men who make handling pay a profit have the answer: More professional handlers use Towmotor than any other fork lift truck.



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PLANT MANAGEMENT: Start Cutting Costs Here*

General Electric's Authoritative New Movie And Technical Manual Tell You How To . . .

- Make a materials handling survey in your plant
- Plan an integrated materials handling system
- Utilize new materials handling techniques
- Select the best materials handling equipment

*A recent survey of 120 factories disclosed that MATERIALS HANDLING COSTS are 36 per cent of over-all production costs instead of the 25 per cent previously acknowledged.

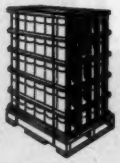
YOU WILL START REALIZING the full significance of modern materials handling—and how its utilization can help you reduce that 36 per cent of your over-all production costs which doesn't add anything to the value of your product—when you see General Electric's new sound-color movie, "Materials Handling—In Receiving, Warehousing and Shipping." In this movie you will see the materials handling problems of a cross-section of industry—your problems. The solutions to these problems are worked out before your eyes with animated drawings and diagrams.

See how to move materials faster, cheaper by truck, crane or conveyor

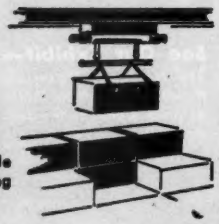
STEPS YOU SHOULD TAKE to correct existing conditions are all outlined completely, concisely in the 92-page technical manual which supplements the movie. Here is a partial list of subjects covered:

- What is modern materials handling
- How modern materials handling speeds production
- Modern materials handling in receiving, warehousing and shipping
- Unit load shipping system
- Materials handling equipment and applications
- Pallets, skids and containers
- How to make a materials handling survey
- Engineering data on conveyors, cranes, hoists, trucks

See how to utilize the special pallets built to suit your particular needs



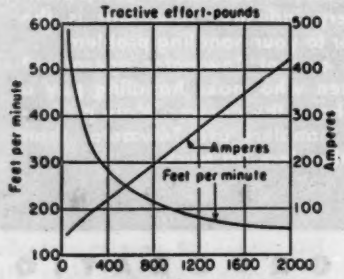
See how to cut demurrage by shipping in unit loads



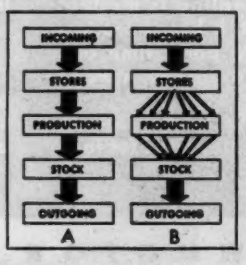
See how to use all available warehouse space by stacking and tiering properly

THIS MOVIE AND MANUAL are the newest additions to General Electric's MORE POWER TO AMERICA program, designed to help industry cut costs through more electrification. You are invited to see it at your earliest convenience. Arrangements can be made through your materials handling equipment supplier, utility, your G-E representative, or simply by returning the coupon below.

Don't delay! See it soon! This Materials Handling Program may show you the way to LOWER HANDLING COSTS - - GREATER PRODUCTION - - INCREASED PROFITS.



See how to estimate number of trucks required in your handling system



See how to make a work-simplification chart

More Power to America

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Apparatus Department, Schenectady, N. Y.

☐ Please make arrangements for me to see the full-color and sound film "Materials Handling—In Receiving, Warehousing, and Shipping"

☐ Please send me a copy of your Materials Handling manual. Enclosed find $1.25

Name.....

Position.....

Company.....

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together, in order to avoid confusion in the manufacturing process.

Therefore, each lot of shoes is placed on a rack which becomes the conveying means until the shoes are finished. Figure 1 shows a series

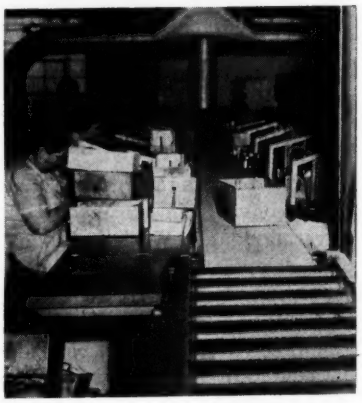


Fig. 3. POWERED BELT CONVEYOR removes work from operators in the heel-cover department. Roller conveyor in foreground is storage bank.

of these racks in the plant, awaiting processing. Virtually all work is on an incentive system and the calculation of these incentive rates includes the handling of the racks into and out of each work station.

One of the advantages of this type of castered equipment is that the actual processing time can vary widely from station to station and the work can accumulate in "pools" between stations without disrupting the flow of production. This principle was so well recognized in the early days of the shoe business that the shoe rack is one of its oldest pieces of equipment. Handling between floors is accomplished either by dumb-waiters or elevators.

Overhead Chain Conveyors

Most conveyor installations in shoe plants down through the years have not been successful. Poor production planning and lack of understanding on the part of the operating personnel have largely been responsible for the failures of these systems. Since the shoe industry is a style industry, there are constant changes in the product and the method of manufacturing. Consequently, when any fixed conveying system is installed, it must be engineered to the material flow with an understanding of this changing production picture.

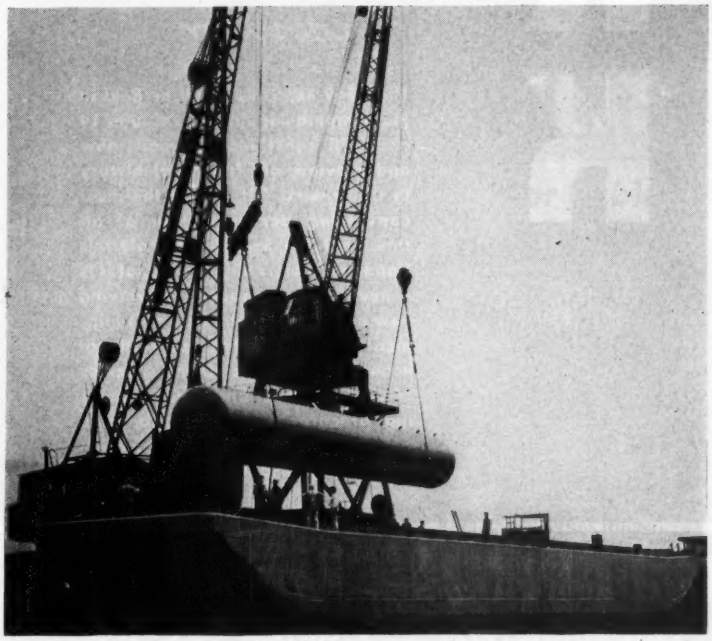
There are two major conditions under which conveyors of any kind can be used in an industry of this sort. They are: 1. Transportation between departments where those departments are not moved relative to each other from season to season, and where the work unit does not change widely in volume or weight. 2. Where the conveying system itself is so flexible that it can be put in and taken out with a minimum of expense and time. It is expected that more and more use will be made of portable conveyors in the future.

An example of the application of an overhead chain conveyor in inter-departmental use is shown in Figure 2. The overhead chain conveyor here is passing the final inspection station in the Wood Heel Covering Plant of our company. As each inspector approves a lot of heels, it is placed on one of the hangers of the overhead chain conveyor, and transported upward three floors, thence into another building where the heels are ultimately stored and used.

In this case, our object was to avoid having an operator receive the work being delivered by the continuous conveyor method. This was eliminated by means of a conventional flatbelt take-off, equipped with proper cleats to keep boxes

THREE CRANES WORK AS SINGLE UNIT

Three shipyard cranes were synchronized to carefully place huge annealed tanks into special barges under construction for Columbia Chemical Division of Pittsburgh Plate Glass Co., and its affiliate, Southern Alkali Corp. Because of the annealing, extreme care had to be exercised in the positioning operation to prevent undue stresses and strains. Resting



on cradles in the barges, the tanks were strapped into position because additional welding was not permitted after the heat treatment.

Four tanks were installed in each of the eight barges, especially designed for transporting liquid chlorine to user plants along the Mississippi and Ohio Rivers and their tributaries, the intra-coastal canal in Texas and Louisiana, and along the Gulf Coast as far as Florida. Each tank measures 64 feet long and eight feet nine inches in diameter, having a capacity of 150 tons of liquid chlorine under pressure. All seams in the tanks were X-rayed before installation.—*Courtesy, Dravo Corp., Pittsburgh, Pa.*

CLARK

MATERIAL HANDLING *News*

a BIGGER exhibit of BETTER machines TO DO MORE WORK AT LOWER COST

—the Third National Materials Handling Exposition

The 1949 Exposition will be held in Philadelphia January 10 through 14 and will constitute a broad view and preview of "industrial history in the making." It will be the most convincing demonstration of all time that the Science of Materials Handling is eternally new—that it is a never-ending process of evolving new and better methods and equipment to the end that our National economy can shake off the shackles of old, inefficient and time-consuming practices which have become prohibitively costly both in human energy and in dollars.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS

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REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD
AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

from turning. It picks up the box as the overhead chain canveyor dips down to meet it, and conveys the work carrier forward at roughly three times overhead chain conveyor speed to a gravity wheel conveyor. With this type of unloading and the receipt of the box on a gravity conveyor, it is possible to hold an hour's work in temporary storage before an operator has to remove it.

Belt Conveyors, Track Guides

Figure 3 shows the application of a belt conveyor in our Wood Heel Covering Plant. Work is brought to each operator in lot sizes, with the materials to be used pre-cut and in proper temper. Each operator then covers the heel blocks as designated by the work tag. When the lot is finished she places the box on the belt conveyor in front of her, and it is carried to the next operation. A belt conveyor is particularly useful for removing material

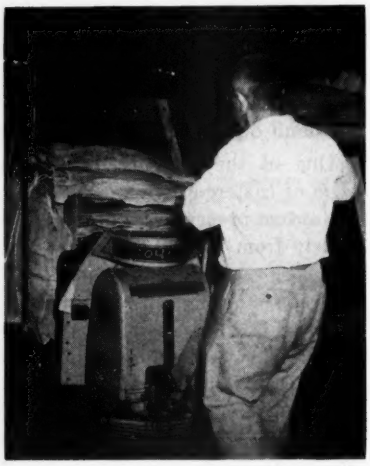


Fig. 4. POWERED PALLET HAND TRUCK moves load of leather bends ultimately used as outsole leather.

from work stations where the destination is always the same. This may be inspection, packing, or a storage station prior to re-distribution.

Where work must be maintained in lots and cannot be handled one unit at a time because of the danger of mismating pairs of shoes or mixing styles, colors, or sizes, it has been found effective to use a simple steel track and a box-like structure

which becomes a carrier to convey the work from one station to another. As an operator finishes the shoes which pass his station, he merely pushes the box ahead to the next stop.

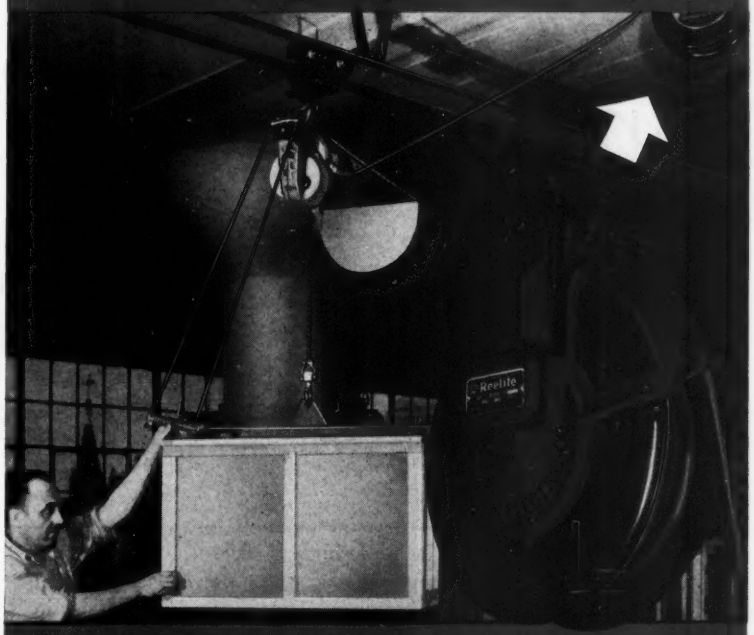
The drawback of this system is the lack of mechanical pacing, and in the early days of experimenting with this type of transportation this proved to be an almost insurmountable obstacle. To avoid this difficulty and superimpose mechanical pacing on the conveying track, each dryer or drying station is equipped with a belt conveyor running at the proper discharge speed. Thus a belt conveyor serves to space the work and maintain a relatively uniform flow between each group of operations. Roller conveyors have been used quite advantageously for moving work in boxes or cartons from one station to another, and, in some instances, from one floor to another.

Powered Trucks

In most of the "soft goods" industries the building structures and the elevators were not made heavy enough or large enough to utilize electric or gasoline trucks. It has been possible, however, to adapt the motorized hand-guided truck to the handling of such heavy supplies as outsole leather, bins, cements, lacquers, etc., on skids and pallets. An attempt is now being made to secure more "pallet-mindedness" among the suppliers of raw materials to the shoe industry.

The soft goods industries, being among the oldest in the country, have for many years had such long-established practices that new conveying ideas are accepted with great difficulty, and their operation is little understood by much of the operating personnel. As labor costs have risen, however, each plant has become increasingly interested in improving the flow of the product and reducing the handling cost. The examples given above are few and simple, but they serve to indicate the trend of thinking in this very important part of our contemporary industry.

Traveling Hoists Work Smoother, Faster, Safer



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HERE'S HOW ENGINEERED HANDLING CUT COSTS $80,000

J. A. MacLellan

FORK - TRUCK-PALLET METHOD

BY MODERNIZING existing methods through the introduction of pallets, motorized hand trucks, and fork trucks, General Tire and Rubber has recently achieved the following savings in handling some 7,500,000 lbs. of materials per month at its Akron plant.

1. Handling hours were reduced 58%, resulting in decreased costs of $800,000 per year.
2. Demurrage costs of several thousands of dollars per month were *eliminated.*
3. Capacity of existing storage space was increased by ceiling-high tiering.
4. Working conditions were improved by the virtual elimination of strenuous handling operations. . . .

POWERED HAND PALLET truck unloading bale rubber from freight car.

These impressive savings were made possible by carefully planning every phase of the program. Before buying a single pallet or making a single recommendation to top management, a survey was

By J. A. MacLELLAN,
Industrial Engineer,
General Tire & Rubber Company
Assisted by M. G. Ganzer & J. A. Delaplane,
Methods Section of the Industrial
Engineering Department

made analyzing existing methods, studying proposed methods, and comparing costs of each. The experience and thoughts of the general Foreman of Receiving and Warehousing, the Manager of Production Planning, the Assistant Manager of the Cost Department, the Foreman of Receiving, the Foreman of Transportation, the Foreman of the Mill Room and the Supervisor of Outside Warehousing were used to good advantage by the Methods Department. Thus, operations were planned on a *plant-wide* basis rather than a piece-meal or single-operation basis. The re-

sult is a smooth, integrated handling system.

The following discussion tells where the savings were achieved, compares old and new handling methods, points out pallet design factors, and gives data on scheduled maintenance procedure.

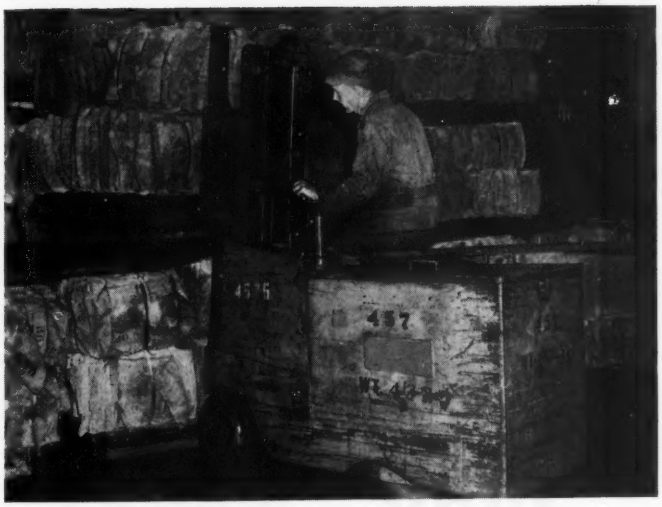
Receiving and Warehousing

All components going into the production of rubber are received at the plant warehouse or at one of several outlying warehouses. Size, weight, and form of packaging vary considerably, depending on the item being received. Bales, bags, drums, rolls, and boxes typify incoming shipments.

Under the old system, single unit handling on skids from incoming boxcar or trailer was the rule. Four men were required to push the loads to the unloading zones. At the storage areas, two men piled the load as high as possible while the four truckmen returned for another load. This system required 14½ hours to unload a car.

Under the present system the incoming material is loaded onto pallets inside the freight car or street truck. Both ends of a car are unloaded at once. A motorized pallet hand truck then enters the carrier, picks up the load, takes it to a scale for check-weighing and carries it to temporary storage on the receiving platform. Loading-to-stacking takes 16.5 minutes per truck. Cars are now unloaded in less than three hours.

High lift fork trucks transport pallet loads from the receiving platform to permanent storage and tier them to ceiling-height. The heavier duty fork truck is used in this phase of receiving-warehousing operations because it has greater capacity and higher speed and can lift the load for tiering. The average distance pallets are trucked is 260 feet. Fork truck tiering makes

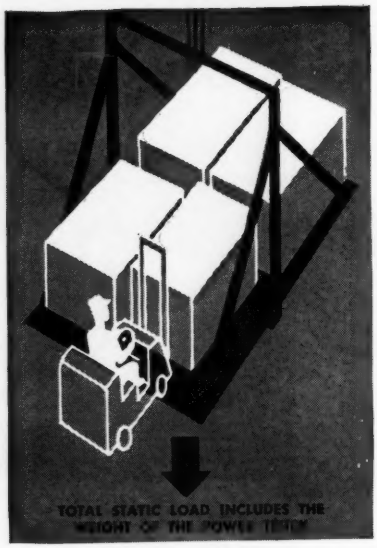


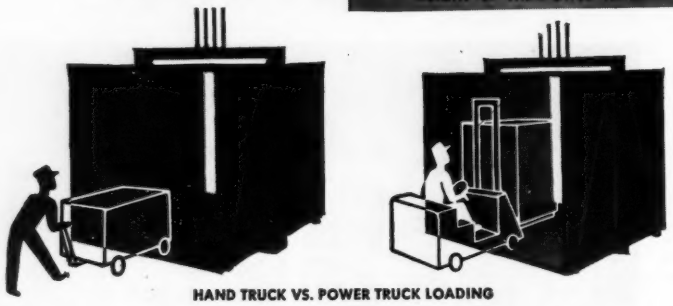
HIGH LIFT FORK TRUCKS move loads from receiving platform, and tier them in storage.

THIS SKID BIN with special superstructure takes stock from cutter to warming ovens.

MONORAIL HOIST and fork truck co-ordinated in feeding rolls of tire fabric to processing.

50% greater static load





HAND TRUCK VS. POWER TRUCK LOADING

ON POWER TRUCK FREIGHT ELEVATORS. Watch the front wheels of a power truck as it deposits its final pay load in the elevator. They usually stop at the outer edge of the elevator platform. This adds the weight of the power truck, some 8,000 pounds or more, to the full pay load. This extra weight, which is not present in hand truck loading, may amount to 50% or more of the full pay load. It heavily increases the static load the elevator must withstand.

Obviously, power truck freight elevators must be specifically designed—*to withstand the 'punishment' of extra static loading.* That's one of several good reasons why you should change your thinking about freight elevators when you change from hand truck to power truck loading.

FREE! OTIS Bulletin B-705F explains what happens when a power truck 'punishes' a freight elevator with extra static loading . . . off-balance loading . . . and impact loading. It shows how OTIS Pow-R-Truck Freight Elevators, with lifting capacities from 8,000 to 20,000 pounds and over, meet these severe stresses. And it also gives platform dimensions and hoistway requirements. Write for your copy. Otis Elevator Company, 260 Eleventh Avenue, New York 1, N. Y.

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STANDARDIZED
POW-R-TRUCK ELEVATORS

DESIGNED TO TAKE POWER TRUCK 'PUNISHMENT'

possible maximum use of overhead space for storage purposes. Zones are kept neat and orderly and inventory is facilitated since pallet loads rather than individual packages are counted. At the main plant the fork trucks sometimes take incoming shipments directly to processing locations or to temporary storage, which feeds the processing operations.

Warehousing to Processing

Material is shipped from outlying warehouses to the plant proper by street truck. Formerly, goods had to be repacked on hand trucks at the various storage zones, transported to a street truck, unloaded onto it, transported by street truck to the main plant, repacked on another hand truck, pushed to production or temporary storage locations and unloaded again. Under the present system, the fork truck takes a palletized load from storage and transports it to the street truck where a motorized hand truck picks it up and loads it. Another pow-

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ered hand truck picks up the pallet load at the main plant and takes it to the desired location. Thus, many hours are saved in handling between warehouse and plant.

The time required for fork trucks to pick up palletized loads at storage zones, transport them to street trucks, and return for another load, is 7.5 minutes per pallet. The time required for a powered hand truck to pick up a loaded pallet from trailer or car and stack it in temporary storage is five minutes. Time required from temporary storage to production is 6.5 minutes per pallet.

Pallet Planning

Careful thought was put into the pallet design feature of the new handling system, with the result that pallet repair and replacement costs, estimated at $6,000 per year, have actually been only $1,200 per year. Pallets are constructed of steel, and were selected because of features considered desirable in this operation.

The size of the pallets was determined so that two pallets would fit side by side, whether trailer or car was used in shipping from outlying warehouses to the main plant. Overall dimensions are 40″ x 48″. The 40-inch dimension permits two pallets to fit side by side in the trailer; the 48-inch dimension permits similar loading, without wasting space, in freight cars. The four-way entry type, which was adopted, facilitates handling operations considerably. Some 4200 pallets are used in the handling system. Pallet loads average 1800 lbs.

Handling Goods in Process

In handling goods in process, both the motorized hand truck and the heavy duty end-controlled platform trucks are employed. This type of hand truck need only be guided by the operator since it is powered for travel. It has advantages over the larger ridden trucks in that it is small, light, and

(Turn to page 39)

FARQUHAR TROUGH CONVEYORS load 140 tons of ammonia sulphate per hour

A LEADING eastern railroad had to speed up handling bulk sulphate of ammonia from freight cars to freighters to meet stepped-up sailing schedules. A series of Farquhar Trough Conveyors helped solve the problem—Model 346's installed below the floor of the pier, and Model 347's (shown here) combining with bucket elevators to load an average of 120 tons per hour. At that rate, it takes less than half the time to load a freighter's hold as formerly, plus a big saving in manpower also.

Farquhar Trough Conveyors handle sharp or abrasive materials, fine or powdery materials, small bags and bundles *faster, better, cheaper*—for all kinds of plants, all types of industry. They can be fitted into materials handling set-ups that cut thousands of dollars from overhead, release manpower for other uses, speed up the entire operation. Come in all sizes and mountings for all requirements.

No matter what you move, stack, pile or load—see Farquhar first for the *right* materials handling conveyor for your job—whether for portable, semi-permanent or permanent use. Tell us your problem—we're ready to help.

For complete information, write: A. B. Farquhar Company, Conveyor Division, 206 Duke St., York, Pa., or 616 W. Elm St., Chicago 10, Ill.

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HYDRAULIC PRESSES • FARM EQUIPMENT • FOOD PROCESSING AND SPECIAL MACHINERY

MONORAIL--
overhead trucking system

PART II

A MONORAIL material handling system consists of ceiling-mounted trackage designed for load carriers with trolleys which may be propelled manually or by power. Gravity is also used. Monorail provides uniform progress for loads between work stations or departments without rehandling. One of the chief features of such an installation is that it operates in overhead space, leaving floor areas free for normal productive functions, and that it is applicable to areas with relatively low headroom where other conveyances could not well function. Monorail also offers flexibility because load carriers are available in a great variety of designs.

Manually Operated Carriers

THIS group includes all load carriers which are propelled by an operator. This type of equipment is indicated where the loads are not too heavy, where no high rate of speed is necessary, and the distance of continuous travel is relatively short.

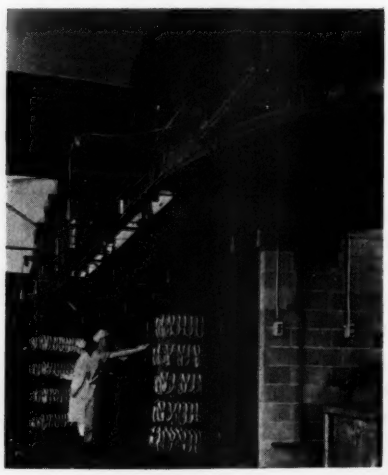
Such manually propelled carriers may be hooks, racks, trays, grabs, platforms, or buckets, depending on the product or the operation. While trolleys are usually standard, there is practically no limit to the variety of load carriers that can be designed to meet product requirements. To give an idea of the tremendous range of applications, such carriers are engineered to move large unwieldy pieces of sheet metal as well as pork sausage.

Usually, several models of carriers, or below-the-hook devices, will be used in a plant where monorail carries the material through various fabrication and/or storage departments to assembly and shipping. For example, a particular design of rack will be used for carrying narrow, oblong piece parts in a horizontal position, or skeleton-type frames may be designed to meet certain processing requirements. At a latter stage, the product, now completed, may be transported on shelf-type carriers suitable for delivering the material to the shipping dock. Or slight variations may make a standard carrier adaptable to changing requirements in the successive steps of a processing cycle. Photos illustrate several such applications.

Thus carriers are equally adaptable to large cumbersome pieces which are moved one at a time, or

SHELF-TYPE CARRIERS carry the finished product to the shipping dock.

RACK-TYPE CARRIERS with pork sausage enter processing rooms on four-wheel trolleys.



smaller uniform items which are transported in considerable quantity. They may be designed for a variety of specific purposes—to meet fabrication and storage needs —and frequently incorporate features for product protection.

Their travel over extensive track systems is facilitated by the incorporation of accessories, as various types of switches and turntables. Data on this and related equipment were given in Part One of this article, which appeared last month.

The description thus far refers to transportation without lifting. Manually operated load carriers may also include a hoisting mechanism to lift the load. A hand hoist is an example. This is used where the height of the lift is not great or where the lifting is not frequent. A typical example can be observed in plants where the monorail system is extended over the truck receiving dock. A hand hoist usually picks up incoming bales, bundles, or castings of relatively light weight. Of course, where receivals are frequent and/or heavy, a power hoist will be used.

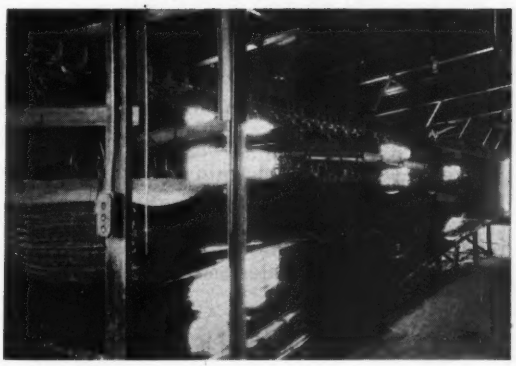
Powered Load Carriers

This group can be broken down into (1) those that are pendant-controlled or cab-controlled (attended by an operator), and (2) automatic systems that are actuated either from carrier-mounted selective control boxes or remote switch panels. Each of the two types is considered in turn.

Pendant and Cab-Controlled Units

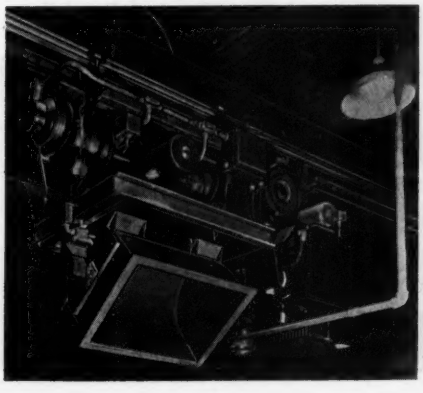
While the motivating force is electricity, these carriers are attended by an operator in order to guide their movements, open and close track switches, manipulate hoisting units, load, unload and return the carriers to the start of the operation. Such equipment is used for loads beyond the range of the manually propelled carriers, and where longer distances have to be covered. The advantage of speed thus becomes a factor of considerable importance, and physical effort is minimized.

BOTTOM DUMP BUCKET is raised and lowered by a manually-operated chain hoist. The unit rides on an eight-wheel trolley.

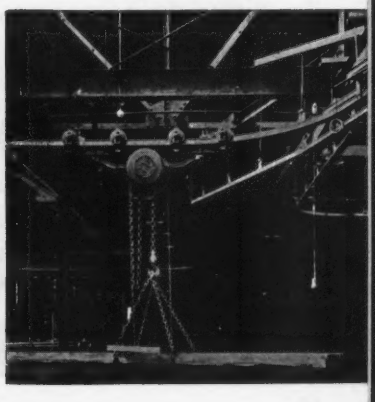


EIGHT-WHEEL TROLLEYS in conjunction with a series of spreader beams handle steel lath. Note dipping section in left foreground.

AUTOMATIC DISPATCHING UNIT equipped with a revolving bucket. This carrier, unattended, routes itself through an elaborate arrangement of operations.



MANUALLY CONTROLLED HOIST is shov attached by means of a connecting bar to eight-wheel manually propelled trolley. No the various pull switches.



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MOTORIZED HANDLING?

Is YOUR FIRM getting its first taste of battery-powered handling by using one or more motorized hand trucks? Chances are that you're trying out your equipment on all sorts of jobs . . . and realizing in how many ways battery-industrial trucks can speed handling and increase production.

If so, now is the time to become acquainted with long-life EDISON Nickel-Iron-Alkaline Storage Batteries . . . the batteries that give you real dollar economy. Did you know they're electrically foolproof — require no critical adjustment of charge rates — can't be injured by reverse charging, short circuiting or similar electrical accidents? Did you know they're built of rugged steel inside and out to withstand rough usage? Did you know EDISON Service Engineers check your batteries regularly and help you to maintain them in top condition?

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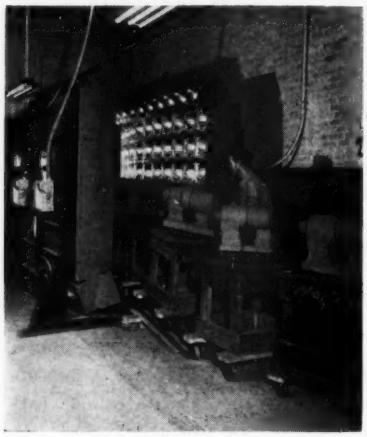
Such installations are particularly valuable where closely spaced machinery makes overhead handling mandatory, or where manipulation of loads would be difficult because of other conditions of machine layout or floor arrangements. Thus loads up to several thousand pounds in weight—ranging from bakers dough and creels of textile yarns to wire coils and airplane wing sections—are handled on intermittent or continuous cycles on the overhead track system in space that would be difficult of access by other means.

MEAT GRINDERS ON CASTERS— Meat grinders move through the entire manufacturing process on special caster-equipped tables at Kleen-Kut Mfg. Co., Cleveland. They are shown here as



they travel through the infra-red drying oven after painting. In the assembly operation, the base of the grinder is first set on a turntable moving on an axis in the center of the table. This permits the assembler to adjust the work in process to any position without lifting it. The casters facilitate movement from department to department. Passing through the oven, the casters move on steel guides which keep the work at an equal distance from the heat sources on each side, providing for uniform drying of the finish.—**Courtesy, Apparatus Division, General Electric Co., Cleveland.**

Where travel is the only operating requirement, a two-button pendant supplies the forward and back motion for the powered trolleys. (Tractors, a specialized type of powered carrier, are discussed in a later section.) When a powered hoist is incorporated with a trolley unit for lifting, the pendant-con-

trolled panel has additional buttons for raising and lowering. In the cab-controlled unit all controls for lifting and travel are in the cab, and maximum visibility enables the operator to handle floor-level and above-floor functions with a high degree of accuracy and safety.

Equipment in each of these subdivisions has its own particular applications in many industries, such as chemicals, foods, paper, metal, wood and others. The pendant-controlled type is used where loads are moved shorter distances and where layout and the nature of the operations make this type of control desirable.

The cab-controlled unit carries the operator above floor level, as in an overhead crane. Units of this kind are designed for speed up to 600 feet per minute, and are employed in plants where relatively heavy loads are transported longer distances between stations and departments. Again, the equipment is applied to the full range of industrial activities—from raw material storage through fabrication and shipping. Such handling equipment is designed to operate in a minimum of overhead space, and maximum use is therefore made of cubage for storage and other functions. Production departments benefit because they are served on fast and regular schedules in minimum time. (Carriers for powered equipment are discussed in the section following the one on automatic dispatch systems.)

Automatic Dispatch Carriers

This type of powered unit, a more recent development, is designed for the completely unattended (automatic) dispatching of loaded carriers to one or more discharge points. It has an automatic return feature of the empty units to the start of the operation. Control may be either from a remote switch panel or from a selector switch box attached to a specially designed trolley. In either case, the operating principle is the same.

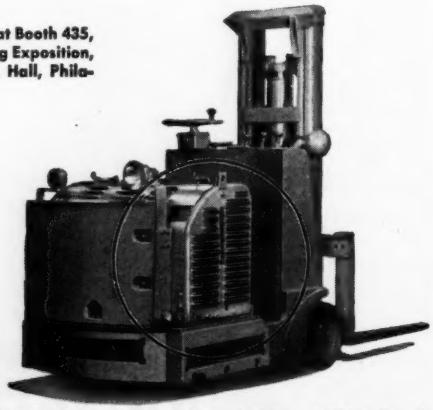
One or a number of station selectors can be located on the control

Let READY-POWER Solve Your Trucking Problems

Ready-Power-Equipped Baker Fork Trucks Loading Semi-Trailers

Heavy loads and long hours can't stump Ready-Power gas-electric Power Units. They are designed to "take it" and built to last. They're better than good enough to handle the toughest jobs hour after hour, day after day with constant power generated right on the truck. Specify Ready-Power for your next electric truck or write for information about converting present equipment.

Visit the Ready-Power Display at Booth 435, 3rd National Materials Handling Exposition, January 10 to 14, Convention Hall, Philadelphia, Pa.



Ready-Power-Equipped Lewis-Shepard Fork Truck

THE READY-POWER CO.

3838 Grand River Ave., Detroit 8, Michigan

panel or dial, and carriers are dispatched singly, or several may be coupled into a train. With the selector switch set, the loaded containers are dispatched to their desired point or route to begin and complete every step in the cycle, without supervision by an operator. These steps include stopping at discharge points, discharging, resuming travel, throwing track switches, opening and closing doors, operating block systems to prevent interference between several carriers traveling on the same system, operating track hoists to change elevation, manipulating powered grabs and, finally, returning the empty containers to the loading point. The automatic type of carrier allows for an almost unlimited number of ingeniously devised control combinations.

Individual limit switch controlled motors perform the dumping at destination by revolving buckets where bulk materials are carried. The operating cycle may be continuous travel in one direction on a closed monorail circuit, or on a single track which has a by-pass loop, or shuttles or single trips.

Applications of this type are commonly used for batching in glass and chemical plants, the handling of core sand in foundries, in scrap metal departments and in many other operations where various types of loose bulk material are handled.

Load Carriers—Powered

For powered trolley operation, operator-attended or fully automatic, a comparably inclusive variety of load carriers is used (in addition to those mentioned in connection with manual trolleys). Bottom dump, side dump and tip-over buckets are typical examples of those available for a large variety of products in bulk. Trunnion boxes and bins are employed for other loose, miscellaneous materials. The number of special designs, with chutes and other features, is practically without limit.

(Turn to page 44)

THE RACK HYDRAULIC TABLE

Pictured is the 5-Ton electric-hydraulic press feed table. Equipped with a remote foot pedal control, automatic overload safety factor, and floor lock. Rugged, heavy-duty construction throughout.

IMMEDIATE DELIVERY

Available in 1 to 5 ton models

Our Engineers are as close as your phone

RACK ENGINEERING COMPANY

925 LIBERTY AVENUE
Pittsburgh 22, Pa.

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CONVEYING EQUIPMENT

For A COMPLETE LINE
A QUALITY LINE.

SEE US
at the
3rd
NATIONAL
MATERIALS
HANDLING
EXPOSITION
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Convention
Hall
Philadelphia, Pa.
Jan. 10 to 14,
1949
BOOTH* 207

ISLAND EQUIPMENT CORP.

Brewster Rolls Royce Building

27-01 Bridge Plaza, North • Long Island City 1, New York

ADMIRAL LOUIS E. DENFIELD, Chief of Naval Operations addressed delegates. Seated left to right—Heinz H. Loeffler, acting chairman of the packaging advisory committee, Rear Admiral E. D. Foster, Captain C. L. Austin, and Lt. Comdr. M. A. Borst, SC, USN, officer in charge supply engineering department.

Navy Industrial Conference

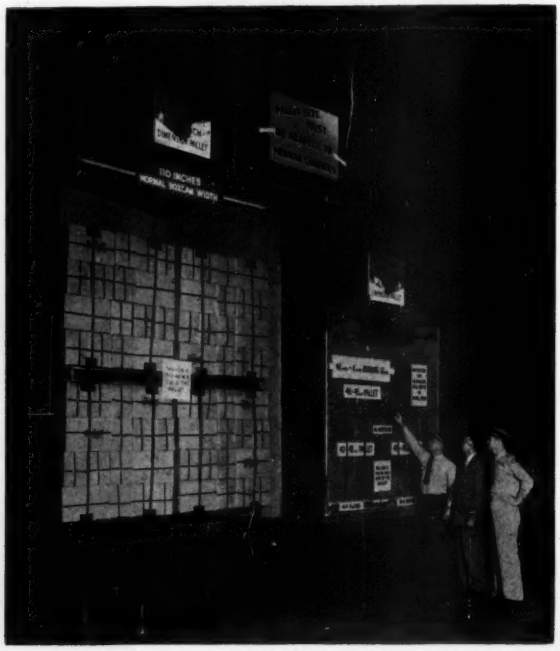
on material packaging and handling

The Navy Industrial Association recently conducted a conference on packaging and material handling at the Navy Supply Corps School, Bayonne, New Jersey. The importance of continued co-operation between industry and the armed forces was stressed throughout. New handling methods and equipment and talks by outstanding Navy personnel highlighted the activities.

SINCE the end of World War II, the continued co-operation between industry and the armed forces has aided the maintenance of the farflung outposts of men, ships and machinery still representing this country in all sections of the earth.

The Navy September conference on packaging and material handling at Bayonne was a further evidence of this interdependence. Addresses were given by Admiral Louis Denfeld, USN, chief of naval operations; Rear Admiral E. D. Foster, SC, USN, chief of the Bureau of Supplies and Accounts; Commodore J. K. Richards, SC, USN (Ret.), executive director, Navy Industrial Association; and Captain C. L. Austin, SC. USN, supply officer in command, Navy Supply Corps School. Excerpts from some of these speeches are given in this article.

STANDARD 40" x 48" PALLET on exhibition at Navy Industrial Conference. This size pallet can be employed on most freight cars and trucks. ▶



DEMONSTRATION OF DOLLY TRAIN system of handling palletized loads. This system expedites loading and unloading of material in transit. ▼

From an address by
ADMIRAL LOUIS E. DENFELD USN
Chief of Naval Operations

THE old cry: 'too little too late' is familiar to all of us. The only way we can avoid its repetition is to work together just as closely as we can. I am fully aware of the importance of developing the science of material handling and packaging to its fullest potential. It can truthfully be said that our supply system was the secret weapon which won the war. That secret weapon was made up of three equally important parts. First, the manufacturing industry, which did a superlative job of producing the materials and equipment of war. Second, the military distribution system, which was able to deliver the goods when and where needed, and in sufficient quantity. Third, the American productive genius, which so effectively preserved, packaged and handled the materials of war that they were immediately usable when delivered to the Fleet or the advanced bases at the end of the line.

Without this last contribution, a great part of the nation's manufacturing effort would have been wasted. The loss of raw materials, manpower and time would have entailed the most serious consequence to the war effort.

Exhibits Show Latest Developments

The latest developments in handling and packaging were featured in a series of exhibits. These were credited to the joint activities of the Navy and American industry. At one station, the operations of fork trucks in box cars emphasized the need of standardization of car size and design. A new non-skid tire and recently designed muffler for fork trucks were displayed.

Also featured was the standard 40"x48" four-way pallet, selected by the Navy after exhaustive tests as most economical for standard Navy shipments. Another exhibit illustrated the accepted methods for storing cargo in ships with regard to natural obstructions and ventilation. The problem of pilferage was discussed.

The packaging section featured designs in overseas shipping containers. Again, Navy and industrial engineers co-operated in designing those which would withstand repeated abuse and afford long life. The application of glue

(Turn to page 57)

Now—A Unique New Industrial Tire Development

U. S. INNACUSH

Here is a completely unique development in the solid tire field—the U. S. Innacush Tire. Its softer inner cushioning cuts vehicle maintenance costs—lessens driver fatigue—reduces breakage. Yet, combined with the tough, wear-resisting outer tread, it provides *solid-tire* carrying capacity and long life. You'll want the Innacush on your powered industrial trucks.

Made only by U. S. Rubber

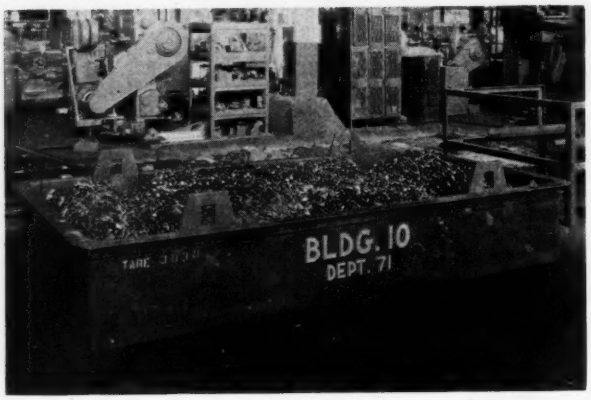
Call your U. S. Distributor.
He's listed in your phone book.

U. S. INDUSTRIAL TIRES ARE

1. Load Rated for every job. 2. Specified as original equipment on leading industrial trucks and tractors. 3. Made by the manufacturers of famous U. S. Royals.

U.S. *load-rated* INDUSTRIAL TIRES

UNITED STATES RUBBER COMPANY
SERVING THROUGH SCIENCE



SCRAP TRAYS accumulate turnings or other scrap and are placed by crane on industrial flat cars for transfer.

INDUSTRIAL CAR with dump-type body transports loose punchings of silicon. Various types of locomotives haul loads.

G. E. IDEAS ON . . .

Scrap Handling

SCRAP collection and its preparation as a branch of material handling has received little recognition in the publications or discussions of the engineering societies. The purpose of this article is to present certain aspects of this operation for further study and better understanding, as it appears to a manufacturing company of large electrical apparatus.

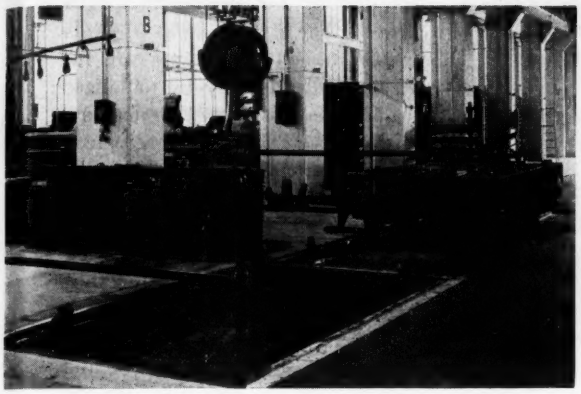
Layout And General Flow

The Erie (Pennsylvania) Works of the General Electric Co. in 1911 commenced its manufacturing operations with the building of eight-cylinder V-type gasoline and diesel high compression oil engines. The growth of this plant resulted from the addition of many diversified lines to the manufacturing requirements—and this in turn added to the variety and importance of the scrap handling program.

From the following condensed description of the plant growth an idea can be gained of the resultant complexity of the scrap problem. 1. A combined malleable iron, aluminum and alloy casting foundry. 2. Two buildings and a wide bay in a third building are used for the manufacture of motors and generators. 3. Several smaller buildings devoted to the production of a wide range of electrical control equipment. 4. Three buildings for the complete fabrication of electric and diesel-electric and mining type locomotives. 5. A refrigerator cabinet manufacturing building. 6. Two buildings devoted to the manufacture of refrigerator units. 7. Another building for the fast-freezer type of refrigerator. (War production extended this list of items considerably.)

By F. E. BLIVEN
Material Handling Engineer
General Electric Co., Erie, Pa.

These buildings occupy an area of one-half square mile. They are 800 to 900 feet long, 200 to 446 feet wide. Each building has a crane yard allowing for a span of from 60 to 75 feet, with the cranes usually running the full length of the building. The areas under these cranes have been concreted to facilitate material handling. Branches of a system of standard broad gauge railroad track lead into each division, which is illustrated in some of the photos. The yard trackage is comprised of 11½ miles of track with approximately three more miles within the structures. Supplementing the rail facilities are 29,000 linear feet of pavements connecting the departments and the works traffic avenues. Thousands of tons of scrap move over these traffic arteries regularly, which also expedite the movement of raw, in-process and finished materials into and out of the various shops. The plans made back in 1910, it can be



TRAY OF SCRAP TURNINGS from the pit is transported on flat cars for transfer to salvage.

A 25-TON LOCOMOTIVE hauls scrap-filled industrial cars. Flat roof permits entering plant doorways.

seen, were conceived on a broad scope that considered future expansion as well as fast, effortless handling of materials and completed products ready for shipment.

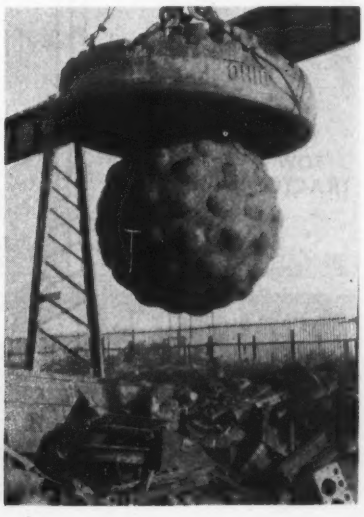
Millions of Pounds. 292 Classifications

Manufacture of this magnitude involves approximately 835,000,000 pounds of incoming raw materials and parts. Completed apparatus will weigh between 400,000,000 and 450,000,000, to which must be added 73,000,000 pounds of scrap generated in machining. The remaining part of the weight consists of such items as coal, fuel oil, foundry pig iron, alloy ingots, as well as dies, jigs and steel for tool devices.

Five Essentials of GE's Scrap Handling Program

1. **A careful selection of personnel and the education of workers and foremen in the need for careful segregation, and the best methods of obtaining it.**
2. **Sufficient ground area in the salvage section is essential to segregate and bin scrap safely and economically.**
3. **All scrap operations should be handled at one plant, and the physical equipment of the salvage section should be devised and selected with this in mind.**
4. **It is necessary that the salvage section operate so that production of scrap reaches the stage of full classification and sorting into saleable scrap on the following day.**
5. **Orderly DAILY handling is regarded here as the best possible means of disposal and segregation of scrap.**

55-INCH MAGNET ready to drop "skull cracker" ball (8400 lbs.) on machine-cast scrap to break it to cupola charging size.



CRANEWAY AND STORAGE BINS for various classifications of scrap. Magnet unloads turnings.

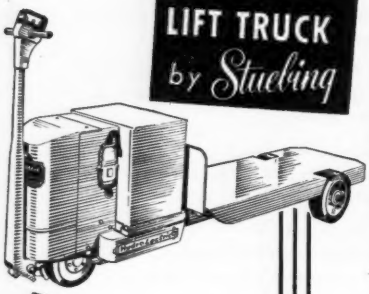
"DON'T PAY TWICE FOR ONE TRUCK!"

Repairs and Downtime are Costly

To the first cost of your truck add all the later costs . . replacements and repairs, part by part . . . labor . . . expensive downtime. Is your money-saving truck an expensive luxury? Stop these mounting costs! Turn to the Hydro*Lectric* 'K,' latest power truck engineered and patented by W. C. Stuebing. Month by month records of low-cost, trouble-free service prove the Hydro*Lectric* 'K' is your best buy in Lift Trucks.

Write for catalog L

HydroLectric "K" MODEL LIFT TRUCK by Stuebing



HAND LIFT TRUCKS

THE TOW TRACTOR

Engineered and Patented by W. Stuebing

LIFT TRUCKS INC. WWW.STUEBING CINCINNATI

LIFT TRUCKS INCORPORATED

2425 Spring Grove Ave., Cincinnati 14, Ohio

Many of these become residual weight within the plant.

It can be appreciated from the earlier listing of the several plants producing the different types of equipment that the scrap generated is extremely diversified. Preparation (from the present lines of manufacture) results in 292 sales classifications. Markets are sought for very few of the items not established for reuse by remelting, reclaiming and salvage. Approximately 86 per cent of the scrap is steel, eight per cent is non-ferrous, and six per cent (in saleable form) is non-metallic. At Erie, we use 50 per cent of the non-ferrous alloy and copper scrap in making alloy castings.

The volume generated and the variety of scrap classifications produced point up the importance of properly engineered procedures and methods for a scrap handling program. The five essentials of such a program are given in a separate panel on the opening pages of this article.

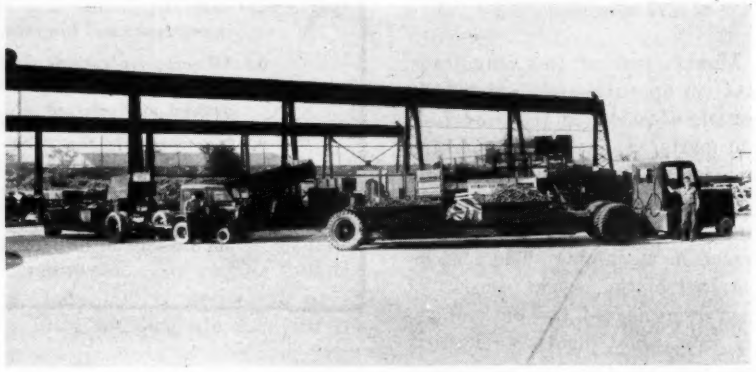
Here are some highlights of the major handling devices, which also move the large tonnage of fabricating materials. Incoming cars are transferred to the depressed tracks or under the outside yard cranes with which each section is provided. Palletized material is moved as needed within the shop by fork lift trucks.

Main cranes, which play an important part in scrap handling, service each bay the full length of the building. Stock areas under roof are placed for minimum length moves. The storage areas of yards under the outside cranes are increased substantially by palletized loads of materials awaiting machine operations. These loads are placed under the steel structures (bents) in the yard.

The side and north entrances of the shops are entered by smaller diesel-electric locomotives, or storage battery type, which deliver the material for manufacture on industrial flat cars. These same cars and locomotives are also used for the loading out of scrap to the Salvage Division. Representative examples of the scrap handling facilities and equipment employed are shown in the accompanying photographs.

Segregation and Handling of Scrap

The great variety of forms in which scrap appears suggests that flexibility, speed and adaptability of handling equipment are of utmost importance to a low-cost operation. Scrap handling equipment is just as important as the devices which move fabricating materials and finished products.



TRACTOR-TRAILER EQUIPMENT handles scrap from departments not provided with rail connections.

During the war years, our machine operators generated continuously a daily production of 45 tons of steel turnings—one carload per day. This represented not only open hearth machine steel but also straight chrome steel, 2½ per cent nickel steel and carbon molybdenum turnings.

The rates of production of the various kinds of scrap generated require study, for the volume pro-

duced and the segregations required determine the method of handling that will be most effective from an economy standpoint. We have conserved every pound of silicon, chromium, nickel and molybdenum since Pearl Harbor by care in the segregation of these scrap turnings. The planned grouping of the machines minimized the chance of contamination between various kinds of scrap.

(In the second and concluding part of this article the author will discuss the closely related subject of rubbish removal.—Ed.)

ENGINEERED HANDLING . . .
(Continued from page 27)

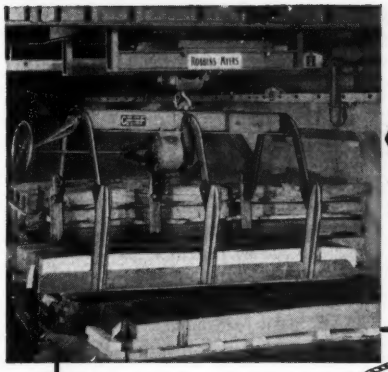
maneuverable. This permits it to operate in narrow and congested passageways, enter elevators, and load street trucks and rail cars which could not be entered by ridden trucks. Its light weight permits its use on second, third, and fourth floors with limited floor capacities.

The special skid bin shown in a photo with one of these "walkie" trucks takes stock from the cutter to warming ovens. The load carrier comprises a skid base and an angle iron superstructure. The construction makes it possible to handle a large quantity of odd shaped chunks of crude rubber in one trip. From the warming ovens, the hand guided trucks take the bins to the mixing machines.

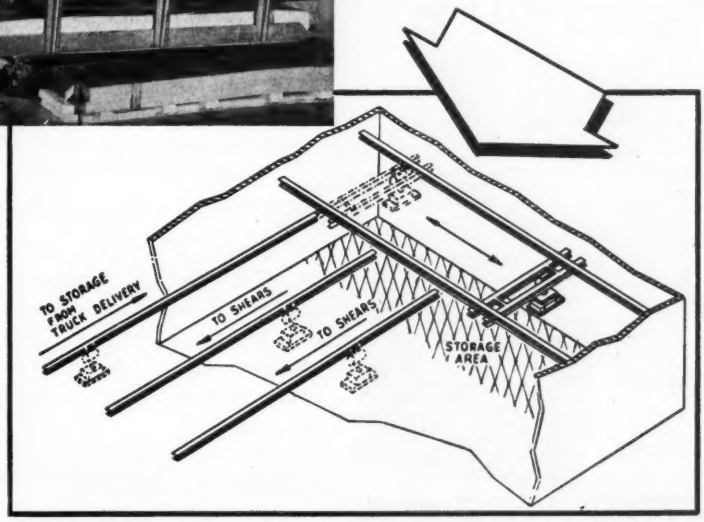
Clever Method for Roll Handling

The end control platform truck transports stock from temporary storage to warm-up mills.

An interesting and clever method is employed for handling rolls of tire fabric. The rolls are taken by fork truck from the receiving platform to temporary storage. A hoist handles the rolls from the truck to the stockpile. In performing this operation, a chain sling with short iron plugs at each end is used to handle the roll. The plugs are in-



ONE R & M HOIST
DOES ALL THIS!



Used with traveling bridge it unloads delivery trucks; carries standard 5-ton bundles to storage, moves sheets to shears. One operator handles this efficient, money-saving system.

SAVES UP TO $8 A TON ON STEEL

This capacity hoist permits purchase of steel in 5-ton bundles, and saves the 7½c to 40c per hundred weight premium charged for purchases in less than bundle lots. The speed of unloading lets you get trucks away from the dock faster . . . cuts demurrage charges. Faster unloading releases man power for other purposes. These savings will pay the cost of the hoist in a hurry.

There is a size and type R & M hoist for every lifting purpose. So, "Take it UP with R & M." WRITE FOR DETAILS, explaining briefly your lifting needs.

Reduce Your Costs

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MERRILL-VOLZ

Two Principle

GRIPPING CLAMP

is specifically designed for gripping and lifting objects with Flat Surfaces.

Has a 5 to 1 Safety Factor; each Clamp tested 100% overload. Simply slip it on to the business end of your hoist and it "takes hold" instantly. As easy as that.

Safe
•
Rapid
•
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•
Economical

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DESIGN AND DEVELOPMENT ENGINEER. MATERIALS HANDLING EQUIPMENT.

All types of motive power driven. Thirty-five years experience with the industries largest companies.

Bernardsville, New Jersey

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serted into core holes of the shaft on which the fabric is wound, and the electric hoist maneuvers the roll into the dip machine. Tension on the chains due to the weight of the load holds the plugs in place during the transfer.

Maintenance. Centralized Control

Truck maintenance is also well planned and carried out at General. Trucks are lubricated every day

SWIVEL CASTERS

- **Double Ball Race**
- **Molded-On Rubber Tires**

High pressure lubricated fittings. Grease retaining chambers, large diameter balls in upper outer races take load as well as side thrust. Races protected from dust and water by over-lapping lips on plate or hangers. Molded-on, easy rolling, heavy duty rubber tires to protect floors. We serve resale dealers and original equipment manufacturers.

SPECIFICATIONS

Caster No.	Wheel Size	Bolt Hole Centers	Height	Capacity
46SRE4	4 x 2	3 x 4	5⅝	180 lbs.
46SRE5	5 x 2	3 x 4	6¾	250 lbs.
46RD6	6 x 2	4⅛ x 5½	8	310 lbs.
46RF6	6 x 2¼	4⅛ x 5½	8⅜	360 lbs.
46RG8	8 x 2½	5 x 6½	10½	530 lbs.

Buffalo CASTER & WHEEL CORP.

182-6 Breckenridge St., Buffalo, N. Y.

Older and more Durable THAN THE PYRAMIDS

TOUGHER THAN STEEL—
NON-SLIP—EASY TO APPLY

No. 7 Resurfacer has no equal for resurfacing and patching Industrial trucking floors. A ¼" thickness is sufficient for resurfacing worn out or rough concrete floors to withstand any traffic—Foot Traffic or Extra Heavy Trucking.

Over wood floors No. 7 may have to be applied thicker than ¼" depending on the floor condition. Write or phone for recommendations.

SETS IN 3 to 4 HOURS—

No. 7 Industrial Resurfacer sets in about three or four hours—is ready for heavy trucking in 24 to 48 hours, depending on the temperature and drying conditions; and is ready in 24 hours if subject to only foot or light traffic.

READY FOR MIXING—

No. 7 INDUSTRIAL RESURFACER comes to you ready-for-mixing-on-the-job. No other materials are required.

Colors: Natural (dark grey), Dark Red, Dark Brown.
Packaging or Unit Size:
4 50-lb. bags of powder
1 5-gallon can of Campcrete Liquid
Coverage: 100 square feet about ¼" thick to each Unit.

FLOORING MATERIALS *for practically* EVERY PURPOSE *from* COAST to COAST

CONSULT US ON YOUR FLOORING PROBLEMS WITHOUT OBLIGATION

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The CAMP COMPANY, INC. TRIANGLE 4-4770-1-2

Why ENGINEERED DESIGN PALLETS?

$W = 1.95 \frac{sbd^a}{l}$ . . . . a flexure formula for determining the maximum permissible load on the deck boards of a pallet. An intimate working knowledge of the above and other more complicated design formulas is necessary to produce pallets basically sound for long life and low maintenance.

ENGINEERED DESIGN premises such a working knowledge.

Pallets Incorporated

Manufacturers of ENGINEERED DESIGN *Pallets*
GLEN FALLS, N. Y.

due to the presence of carbon black throughout the plant. Closed bearings have been developed to keep carbon black out of them. Two trained mechanics perform all repair operations, each mechanic working an eight-hour shift, with four hours between shifts. Trucks receive a weekly checkup on Saturdays when the plant is not in operation.

Control of material handling is centralized under one man in the Material Handling Department. This setup instigates a "needle" program between the Materials Handling Department and Maintenance Department. The maintenance people keep the operators on their toes in actual truck operations, and the Material Handling Department keeps the Maintenance Department on its toes in keeping the truck in good working order.

LAMP BLACK, a difficult material, is readily handled in pallet loads. Note four-way entry pallet and motorized hand truck.

Truck batteries are operated 12 hours (two 6 hour shifts) between charges.

The Next Step

It was not difficult to sell the management on this project with the facts and figures assembled in the initial survey. The new system has been in operation about two years and the actual savings have exceeded the estimated ones. So much time has been saved in receiving operations that handling equipment is available for use in production and for other purposes. A program is now being studied to mechanize the warehousing and shipping of finished products.

ROSS HEAVY DUTY LIFT TRUCK

CUTS HANDLING COSTS 50% for The Imperial Desk Company, Evansville, Indiana

All lumber used in the manufacture of Imperial's well-known quality office furniture is handled by a Ross Lift Truck. Over a period of two years, this machine has consistently moved and stacked this lumber at a saving of *50% of former cost!*

Arriving at the plant via rail or truck, the packaged lumber is unloaded, stacked in the yard for air-drying then transported to the mill. These operations are accomplished by the Ross in a fraction of the time required by former handling methods.

This is another of the many examples of what Ross Lift Trucks can do for you. Why not get all the facts about Ross?

Rely On ROSS

THE ROSS CARRIER CO.

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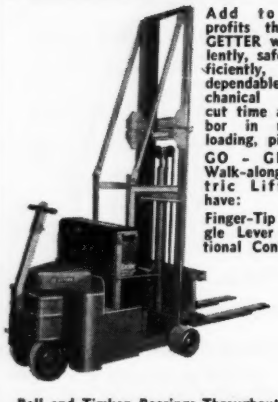
Direct Factory Branches and Distributors Throughout the World

INSTITUTE AND ASSOCIATION ACTIVITIES

THE November meeting of the Midwest Material Handling Society (Chicago) heard a panel discussion by Dr. R. W. Stone, Professor of Industrial Relations at the University of Chicago, and Joseph Germano, Director Dist. 31, United Steel Workers of America, CIO. Their subject was The Labor Relations Aspect of Material Handling. The program committee has scheduled Ezra W. Clark, business counselor, for the December 14 meeting. The title of his talk will be Attacking Material Handling Problems in the Plant and Warehouse.

REVOLVATOR
GO-GETTER
POWER LIFTRUCK



Add to your profits the GO-GETTER way. Silently, safely, efficiently, these dependable "mechanical men" cut time and labor in moving, loading, piling.

GO - GETTER Walk-along Electric Liftrucks have:

Finger-Tip Single Lever Directional Controls

Ball and Timken Bearings Throughout
Large Dual Differential Wheels
Heat-treated Stub Tooth 20° Spur Gears Running in Oil

SIX TYPES:

Low Lift Platform Skid
Low Lift Pallet
High Lift Counter-balanced Fork
High Lift Straddle Fork
High Lift Platform Skid
Tractor for Towing and Pushing

Send for Details

REVOLVATOR CO.
DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

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APPROXIMATELY 60 people were in attendance at the October meeting of the Northeastern Ohio Chapter of the Material Handling Institute, Cleveland. The program included a talk by E. A. Hendrickson, sales manager of the Samuel Olson Mfg. Co., on conveyors, their history and present-day applications. Pictures were shown in conjunction with the discussion. Frank C. Weir of the Timken Roller Bearing Co. was the featured speaker. His subject was Straddle Trucks and Radio Control. Weir first presented a paper on straddle truck handling at his plant (the operation was reported in FLOW in August and September, 1948). Next he outlined the savings and methods improvements accounted for by radio control of these units.

THE Central New York chapter of the Material Handling Institute, Syracuse, has elected the following men as officers: president, Allen K. Strong, Columbian Rope Co.; vice president, D. W. Pennock, Carrier Corp.; secretary, P. E. Hickey, International Harvester Co.; and treasurer, H. R. Bungay Jr., Yale & Towne Mfg. Co. The Chapter's program committee includes Bungay, Pennock and A. J. Smith of the American Locomotive Co.

SIXTY-TWO persons attended the October meeting of the Indiana Material Handling Society to hear R. W. Mallick, material handling consultant, speak on Plant Layout and Material Handling. The meeting was held at the Hotel Severin, Indianapolis. The November meeting was highlighted by a talk by Ezra W. Clark, whose subject was Management Takes a Look at Material Handling Methods. The next regularly scheduled meeting will be held at the Hotel Severin on December 13.

THE Material Handling Institute announces that two sound motion pictures produced by the United States Navy on the subject of material handling are available to interested groups. The titles of these films are The Fork Truck, and The Unit Load. Organizations may obtain them through loan or purchase from local film libraries.

AT THE first meeting of the Chapter Advisory Board of the Material Handling Institute held in Pittsburgh, the following topics were discussed: Standardization of Chapter constitutions, membership fees and eligibility; cost of obtaining speakers, with names of suggested speakers and subjects on which they could talk; cooperation of Chapters on meeting dates and subjects so that the same speaker could cover different Chapters on the same trip; telling the story of material handling in natural sequence within a well defined period of time, so that a fairly complete solution to one phase of material handling could be covered in that time. The problem of what financial help the Institute could afford the Chapters was discussed. The possibility of using funds from the national exposition and/or each Chapter contributing a portion of its membership dues was offered. No definite decision was reached.

THE Caster and Floor Truck Manufacturers' Association elected the following men as officers for the coming year: President, A. B. Morris, Nutting Truck and Caster Co.; vice president, C. Carter Bond, Bond Foundry and Machine Co.; treasurer, A. B. Anderson, Nagle Chase Mfg. Co.; and secretary, H. P. Nolan, Chicago office. The board of directors include: W. G. Reycroft, L. C. Conner, K. P. Norton, J. N. Robbins, C. Carter Bond, and J. Stefan, Jr.

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WITH PITTSBURGH COLLAPSIBLE CARGOTAINERS

From Production Line

The Cargotainer receives parts as they come from machines. Empty Cargotainers are collapsed, take little space, are light-weight, can be kept handy.

To Storage and Shipping

Fork truck takes filled Cargotainer from production to storage, then loads Cargotainer from storage to truck or freight car. There is no re-handling of parts.

To Assembly

Cargotainers are received and stacked ready for assembly line. Inventory is easy—stock always visible. Fork truck delivers to assembly points.

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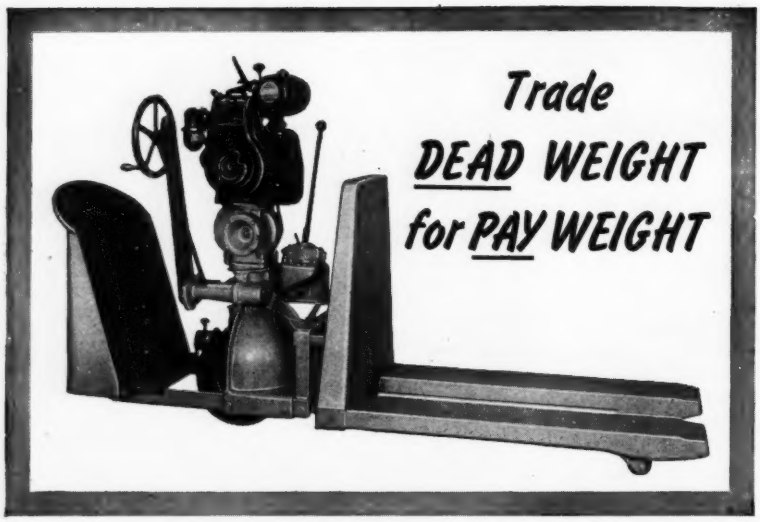
Cargotainer



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You *know* what it costs, per ton, to 'spot' material with a hand truck—or a heavy stacking truck. But there is a practical way! That's why we designed the Truckman PALLET TOTER; payload, *3000 pounds and more* — weight 920 pounds, ready for action! It incorporates the same dependable power turret you found so successful in Truckman Model D Hydraulic Lift Truck and Truckman Platform Utility. It's agile, rugged, simple to operate and maintain. It has scores of features important to you, including:

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MONORAIL SURVEY . . .

(Continued from page 32)

Powered monorail trolleys in foundries transport ladles in a variety of models engineered to particular requirements. Likewise available are dough troughs in various designs, as well as skips. Certain designs of bin-type carriers are equipped with casters and lifting lugs for on-the-floor and overhead operations.

Grabs constitute another large category of load carriers. Like some of the other carriers just mentioned, they may be operated manually, semi-automatically or automatically. These grab designs are the same in principle and function as those used for hoists and cranes, and were previously described in FLOW Magazine for May and June, 1947. The same design features hold good for monorail grabs —that is, simplicity, safety, and economical use of headroom.

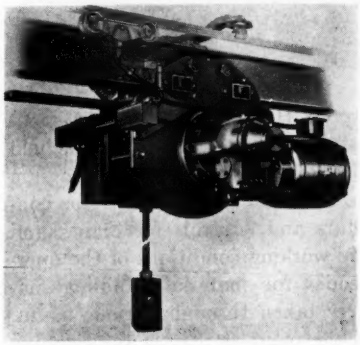
The carrier or grab for a particular job is best determined after a study of the product, the plant structure, the manufacturing requirements and the headroom available. The effective use of a monorail system depends frequently on the effectiveness of the below-the-hook devices chosen, and hence monorail specialists should be consulted before reaching a final decision.

Monorail Tractor

The monorail tractor is a separate power unit which, as the name implies, is used for furnishing tractive power for hoists, cabs or for pulling carriers coupled into trains over grades. It is effectively employed where very heavy loads are transported, and makes it unnecessary to motorize individual carriers where these are used in considerable number. Tractors operate on level or inclined rails, depending on the type of service, and are also equipped for automatic dispatch service which is described in an earlier section of this article.

Usually powered by electric motors, the units are provided with

one or more traction wheels bearing on the bottom or top side of the lower flange of the monorail. Control may be from a pendant, an attached operator's cab or platform or from a remote pulpit. Tractors are also available with solid rubber tires mounted on a gear head motor which drives the traction wheel. These tires apply positive traction to the underside of the monorail. In cases where loads are unusually heavy or grades are steep, double-wheel tractors are available for maximum drawbar pull.



MONORAIL TRACTOR supplies horizontal power to all sized trolleys. Rubber tire increases traction for pulling and on grades.

So far this article has covered the more usual type of industrial applications. However, monorail is also used in the performance of specialized or unusual tasks, which can be here only suggested. For example, certain textile manufacturers have adopted self-propelled automatic blowers to travel on loops of monorail through lint producing departments. The blowers keep machinery and work areas free from lint. Another example is the use of monorail in conjunction with hoists for washing windows in commercial buildings. The horizontal track is attached to the upper part of the wall, and the cab is lowered as the washing progresses. A similar arrangement is also used for painting. But these specialized applications do not fall within the scope of this article.

Great Scope and Flexibility

This description has suggested the vast scope and flexibility obtainable with monorail equipment in all types of industries. The following factors are important with regard to the choice of monorail equipment to be used. 1. The speed and length of travel. 2. The weight of the load. 3. Height and frequency of the lift. These and related factors determine the type of lifting and travel equipment. Such accessories as carriers or grabs are dictated by specific products and conditions of manufacturing.

Thus monorail lends itself to intermittent and continuous handling on overhead trackage that may be a closed loop, a complex network of crossing sections connected by turntables, or a single length of track extending through several departments in which a product is completely fabricated or assembled.

(See last month's article on trackage, turntables, switches, trolleys, and accessories.)

The data and photos appearing in this article were furnished through the courtesy of the following companies: The American Monorail Co., The Louden Machinery Co., and Cleveland Crane and Engineering Co.

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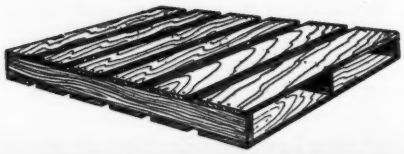
ON THE  PALLET

NEWS · VIEWS · TRENDS

ECONOMY ENGINEERING CO., makers of portable elevators, barrel racks, and other material handling equipment, has moved its manufacturing facilities to a new plant at 4511 West Lake St., Chicago 24. The new quarters approximately double the former shop floor space and provide room for greater efficiency in the layout of production and shipping facilities.

COMPLETION of extensive expansion at its Elyria Parts Division was announced recently by A. W. Smythe, vice president and general manager of The Thew Shovel Co. The company manufactures power cranes and shovels. Included in the program were additions to two Thew plants located near Hazel and Beech Streets, Elyria.

THE 18th annual National Packaging Exposition, sponsored by the American Management Associations, will be held May 10-13, in the Public Auditorium at Atlantic City. The show will be the largest in industry history with 200 exhibitors using 110,000 square feet of display space. The annual four-day AMA conference on packaging, packing and shipping will also be held in the Auditorium concurrent with the Exposition.

THE Addison-Semmes Corp. has completed licensing agreements with the Hoerner Corp. for the non-exclusive manufacture and sale of the Addison-Semmes expendable pallet. The Ohio Boxboard Co. has completed a licensing agreement for making, using and selling the expendable pallet in its territory. These two companies are in addition to the International Paper Co., Container Division, which is manufacturing pallets at the present time.

THE Buda Co. has acquired W. F. Hebard & Co., Chicago, manufacturers of material handling equipment including "Shop Mule" tractors and lift trucks. Hebard & Co. will be operated as a wholly owned subsidiary of the Buda Co. and will continue to manufacture its present line of products.

THE Selinium-Intelin Division of Federal Telephone and Radio Corp. has been elected to membership in The Electric Industrial Truck Association. This division of Federal Telephone manufactures and distributes selenium-type charging equipment for storage battery-powered industrial trucks.

THE second Material Handling Conference sponsored by the Westinghouse Electric Corp. was held in Buffalo, November 8-9. Included on the program were discussions on electrical problems in the conveyor industry; motors and controls for cranes and improvements for the working conditions of the operators; and safety codes for material handling machinery. Visitors were taken through various manufacturing sections of the plant as part of the two-day program.

THE following men were first-place winners of the second annual Protective Packaging Contest held in connection with the Industrial Packaging and Material Handling Exposition in Chicago's Hotel Sherman. Corrugated or Solid Fibre Boxes, Guy G. Jensen, Wisconsin Division, Timken Detroit Axle Co., for packaging an oil burner; Nailed wood boxes, J. N. McConnell, Central Scientific Co., a package for Cenco consistent temperature oven; Wirebound boxes, A. W. Lundstrum, Heating Research Corp., for Saf-Aire gas heater; General group, Robert G. Anderson, Speery Gyroscope Co., for packaging a Wave Guide in a chemically treated fibreboard wooden end box; Export, H. A. Hunt, Burroughs Adding Machine Co., for a bank book adding machine.

THE Mechanical Engineering Department of Michigan State College has recently started publication of a monthly pamphlet, dealing with the subject of methods engineering. Methods Engineering News is believed to be the first publication of its kind to be distributed by an educational institution as an aid to small industry. It is sent to about 2000 Michigan manufacturers who employ between 25 and 300 persons. The pamphlet includes articles, a listing of current technical magazine articles, suggested books, and manufacturers' literature which is available. Space is also devoted to a question and answer section.

A NEW fluid plastic film is now being introduced to preserve fresh food-stuffs. The process deposits a plastic film on the shell of eggs, the skin of fruits and on certain vegetables. This film is said to be odorless, tasteless and entirely harmless. Wherever the skin of the fruit is not suitable for direct application of the new plastic fluid, a wrapping paper can be used, which is impregnated with the plastic fluid.

How packaging time was cut 40%

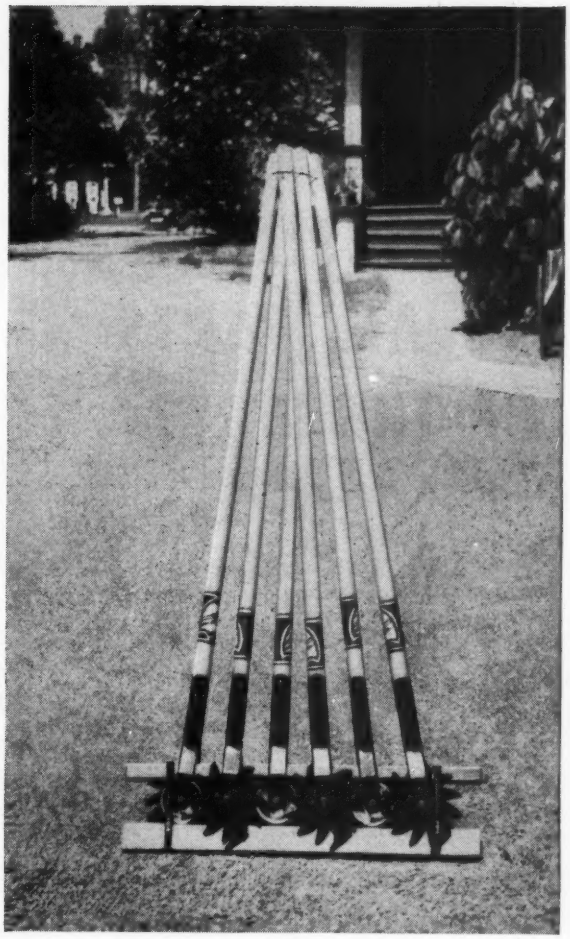
Read how Acme Steelstrap and Acme methods help tool manufacturer cut packaging material costs 88%

The Multi-Shear Lawn Edgers pictured here are made by Appliance Manufacturing Company, Santa Ana, California.

Old cost for packaging six units was 27¢, with 5 minutes' packing time.

Then an Acme Shipping Specialist suggested the method of packaging you see here—two wood strips "Bound to get there" with Acme Steelstrap. Cost, 3¼¢; time, three minutes. Saving, 88%.

Pennies saved per packaging unit mean dollars on your books at the end of the year. Acme Shipping Specialists are ready to help you get them. For more information—and detailed case studies of how we have helped other companies—just clip and mail the coupon for the free booklet, "SAVINGS IN SHIPPING."



MONEY SAVING AND PRACTICAL—just three minutes is all it takes to package six lawn edgers with Acme Steelstrap for a saving of 88% over previous package cost.

Acme Steel Company, Dept. F-128
2838 Archer Avenue, Chicago 8, Illinois

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SHARONSTEEL

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

CONTENTS

PACKAGING EFFICIENCY FOR CARTONS—it takes only 1½ minutes to form a carton, fill, glue and seal it..... 50

SPICY STORY—six operators handle and package up to 1400 dozen bottles of pepper in an eight-hour day..... 53

PACKAGING EFFICIENCY FOR CARTONS

BELT CONVEYORS, FILLING, CARTONING, SEALING MACHINES

In this high-speed rice packaging operation, it takes only 1½ minutes to form a carton, fill, glue and seal it. Four operators are in this line.

ONE of the important industries of the south-central United States is the raising, processing and distribution of rice. The application of high production equipment

Folded cartons placed into magazine of machine. Note partly setup and completed cartons at right.

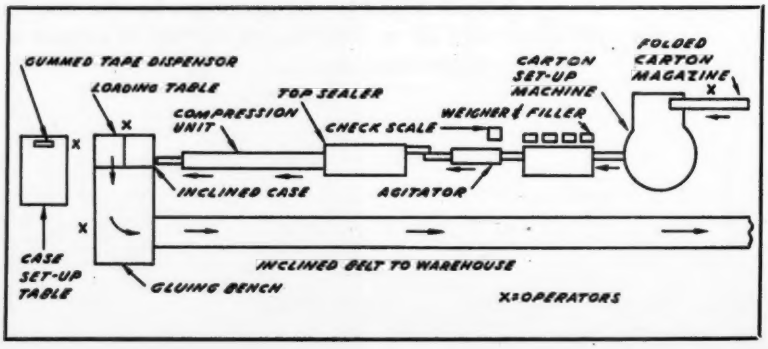
to the packaging of rice for home use has been a fairly recent development. The United Rice Milling Products Co., Inc., New Orleans, is one of the South's foremost rice processors, and this article describes the company's box packaging method and equipment. (Last month's article on this company described its filling method for non-rigid containers.)

The raw material is received in carload lots, either bagged or loose. A belt conveyor which runs parallel and directly adjacent to the track, is installed in a pit with a removable cover. The belt line is designed to move the material from the car doors. The bags are trucked to the door and emptied into the pit, while the loose loads are removed with the aid of a power hoe driven from a winch outside the car. The belt discharges into a hopper which feeds a bucket elevator. The latter delivers the material to a series of chutes leading to the overhead raw material bins. From these, the grain moves to the mills by gravity. After processing, it is returned to a battery of finished material storage bins via a bucket elevator. Chutes direct the milled rice from storage to the packaging department.

Carton Preparation

The first operation on the packaging line is to set up the knocked-

Chart shows reversible flow of materials. Master cartons are sealed or second floor.



down folding cartons. These are received in cases containing 800 of the 12-ounce size. The operator removes the folded stock and places it into a magazine that self-feeds the cartoning machine. The six-foot long magazine holds the folded

Supervisor checking weight of loaded carton. Four cartons are filled simultaneously.

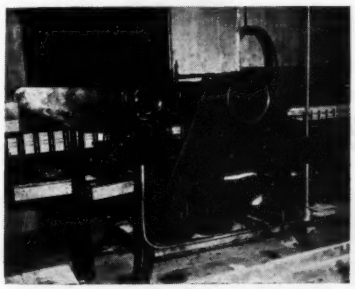
cartons in an upright position, with the carton tops down. An arm exerts pressure at the rear of the cartons. Each time 13 are fed, the arm advances the row two inches, thus maintaining the required pressure. The units are advanced by raising the row of cartons resting on the upper frame and sliding back the lower one.

As the cartons near the machine they pass into an aligning fixture, which exerts pressure against their sides and thus squaring them for transfer from the magazine to the machine. Here is how the individual cartons are opened. A lateral ram presses against the outer edges as a blade is inserted from below. The blade holds the carton along the score line while the ram opens it. Continued pressure by the ram "reverse folds" the carton, which is formed when released.

The next operations are done on the four-position revolving fixture of the machine. 1. In the first position the formed carton is picked up by a descending arm. 2. The bottom flaps are glued and tucked. 3. The glued flaps are pressed to set the glue and square the container permanently. 4. In the fourth position the carton is ejected on a narrow belt conveyor.

Filling, Gluing, Sealing

The belt transfers the containers to the filling machine, which weighs and fills four cartons simultaneously. The filler is the four-bucket dump type that can handle 12 to 16-ounce packages. Upon entering this machine, the cartons are clamped in place momentarily while the rice is weighed in the buckets and then dumped. The filled containers are released onto the conveyor in series of fours. A balance type check scale is located adjacent to the filler for checking, as shown in one of the photos. The filled units then pass onto a belt



Back view of top sealer. Cartons pass through machine into the compression unit on the left.

which is equipped with a built-in agitator having a vibration rate of 240 per minute. The vibration settles the rice in the cartons.

The units then pass into the top sealer and compression machines (see photos). Upon entering the sealer the front end flap is depressed by a guide, and an arm descends to press down the rear end flap. In this position, the two side flaps are folded out so they can pass be-

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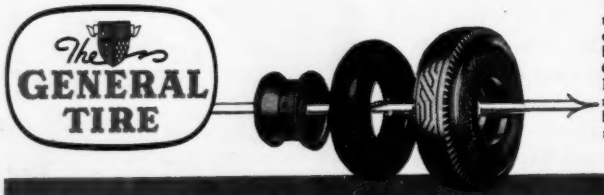


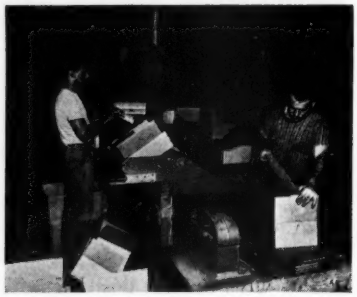
The most modern of the new materials handling equipment is being supplied with General Industrial Pneumatic tires. Available in complete assemblies of wheel, tube and tire, or tire alone.

THE GENERAL TIRE & RUBBER CO.
Akron, Ohio

tween glue application rollers. The glued sides are then folded in place by a pair of flared guides. The compression unit holds the glued cartons securely between two moving belts for one minute, allowing the glue to set. The entire operation from the time the flat carton enters the set-up machine until it leaves the compression unit, is only one and one half minutes.

Packing Layout, Motion Economy

The cartons are packed 30 to the corrugated paper case. These cases are brought to the line knocked-down, where an operator sets them up and seals the bottom flaps, as shown. To facilitate this application, a gummed tape machine with a dial indicator was provided. It wets, ejects, and cuts predetermined lengths of tape. The set-up units are passed to the loader, who places two cases on an inclined packing table. The 30 degree incline of the cases permits the operator to load three cartons of rice at a time without the possibility of their tipping.



Case setup, loading and sealing. Glued cases are upended and conveyorized to warehouse.

The full cases are pushed onto an adjoining work bench. Here the top flaps are glued and the case is turned over to put pressure on the freshly glued surface. In this position the case is slid onto an inclined belt conveyor which removes the loaded cases to the warehouse. Here they are placed on pallets and stored pending shipment.

Four employees are able to do the entire job, from carton preparation to the delivery of the full cases to the warehouse. •

Spicy Story

High-speed packaging equipment and efficient handling techniques fill and package up to 1400 dozen bottles of pepper in an average eight-hour day. Six operators do the job.

By DAN PENSIERO
General Manager
Euclid Foods Co., Cleveland

THE Euclid Foods Co. processes, packages and distributes approximately 40 different kinds of spices. Our constant aim has always been to incorporate the most efficient material handling equipment and the most productive layout into our operations. Our black pepper operation will afford a good example of the methods generally used.

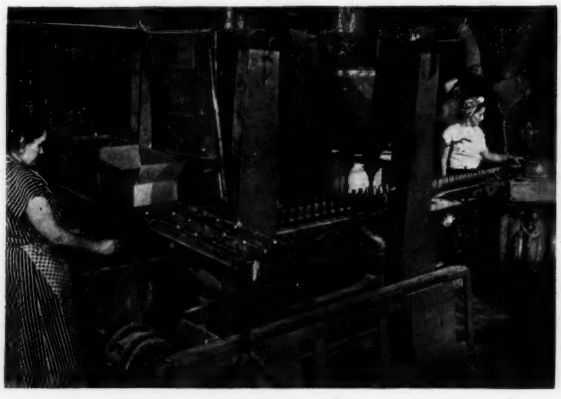
Pepper Rides On Skids

Whole pepper is imported from the Far East and reaches our plant in rail cars in 140-pound bags. Each car contains from 200 to 300 bags, which are placed on skids on the receiving dock, 10 bags to a load. Hydraulic hand lift trucks transport the skid loads to a platform scale inside the plant, whence the material is moved to the elevator and taken to temporary storage on the fourth floor.

When needed, the skidded bags are trucked to the pepper bin which is located over the grinding machines on the lower floor. The contents are dumped into a conveyor hopper through a one-half-inch screen, and is then discharged by a bucket elevator onto a vibrating tilted screen. The screen is of two sizes. One is very fine and removes any dirt, and a coarser screen removes any remaining large foreign matter. The waste material drops into chutes which lead to collecting barrels. The larger screen allows the pepper to drop through into bins which hold approximately 70 bags of pepper or about 10,000 pounds.

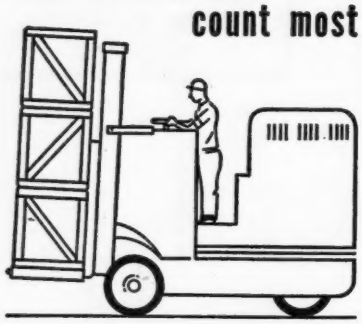
Gravity chutes deliver the pepper to the third-floor roller mill

DOUBLE-FEED FILLING LINE and bottle capper. Bottles are fed from reshipable cases at left.



BOTTLES ARE TAKEN from conveyor and placed into individual boxes, then into shipping cases.

where ton miles count most



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PACKAGING MECHANICS SECTION

hopper, thence to the roller mill. Between the hopper and the mill, a magnetic separator removes ferrous metal particles.

Preparation For Packaging

The ground pepper drops into a chute feeding another bucket elevator, which discharges on a gyrating screen. Different size screens are used, depending on the desired size of the finished pepper. The screened pepper travels via another bucket elevator and two chutes to either barrels or portable storage bins. Orders for full barrels are filled at this station. The portable bins, which are moved by hand trucks, range in capacity from 800 to 1800 pounds.

The full bins are placed over spouts which feed the hoppers of the filling machines located on the second floor. Bottle caps are also stored in bins and are fed through chutes to the second floor capping machines.

Double-Feed Filling Line

Ounce and a quarter bottles arrive in reshippable cases, six dozen to a case. They are unloaded onto skids and stored in areas adjacent to the start of the packaging line. The latter is supplied by a gravity roller conveyor.

Two bottles at a time are placed into the seats of the double-feed line. The filling line movement is coordinated with the rate of two duplex filling machines. These machines are of the auger-feed, cam-operated type, so that filling is weight controlled. The first of the two sets of machines fills the bottles loosely. As the containers move down the line, a vibrating mechanism settles the pepper to the true level in each bottle. The second set of machines completes the filling.

The two filling lines converge onto a three-inch-wide belt conveyor which feeds the capping machine, which can be adjusted to bottles of

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. . . and 65% of these pallets were bought by former customers, which convinces us that Razorback Pallets give complete satisfaction! Our rounded-corner feature is increasingly popular as companies become acquainted with this feature that reduces damage to palletized merchandise and lengthens pallet life. Contact us or our representatives for information.

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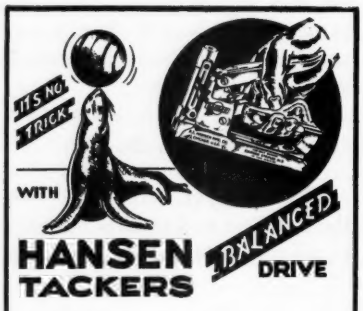
P.O. Box 794-A Phone 6474
PINE BLUFF, ARKANSAS



NOW . . .

you can streamline your shipping department. Durable, rapid-fire Hansen Tackers speed carton assembling, lining, sealing, tagging, etc.

NOW . . .

your operators can drive tacks or staples as fast as they can squeeze the handle—accurately, firmly. Magazine holds scores at one loading.

NOW . . .

is the ideal time to cash in on the speed, simplicity, and economy of Hansen operation. There is a Hansen Tacker to fit every job.

A. L. HANSEN MFG CO.
5018 RAVENSWOOD AVE CHICAGO 40 ILL

FIRST

"First year—saved $600 in shipping room," say users of Marsh Stencil Machines, Brushes, Inks! WPB, railroads, truckers recommend stenciling. Easy to use, three sizes to meet Gov't Spec., 1", 3/4", 1/2. For sample stencil, shippers' handbook and prices, pin this to business letterhead, with your name.

MARSH STENCIL MACHINE CO.
67 Marsh Building
Belleville, Ill., U. S. A.

MARSH
STENCIL MARKING

RECIPE for EFFICIENT MATERIALS HANDLING
as TESTED in a NATIONALLY FAMOUS PRESSURE COOKER PLANT

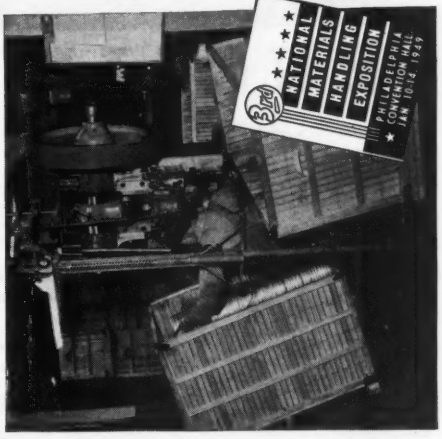
INGREDIENTS: hand fork trucks, power lift trucks, special hoist rigs, Lewis Skid Boxes.

Take any sized manufacturing plant; throw out all assorted cartons and other inefficient production parasites; install a system of woven wood-and-wire skid boxes; sprinkle with hand fork and powerlift trucks as needed; set up special rigs for faster production (see illustration). Then notice the smooth flow as you pour in materials for production. Serves a lifetime.

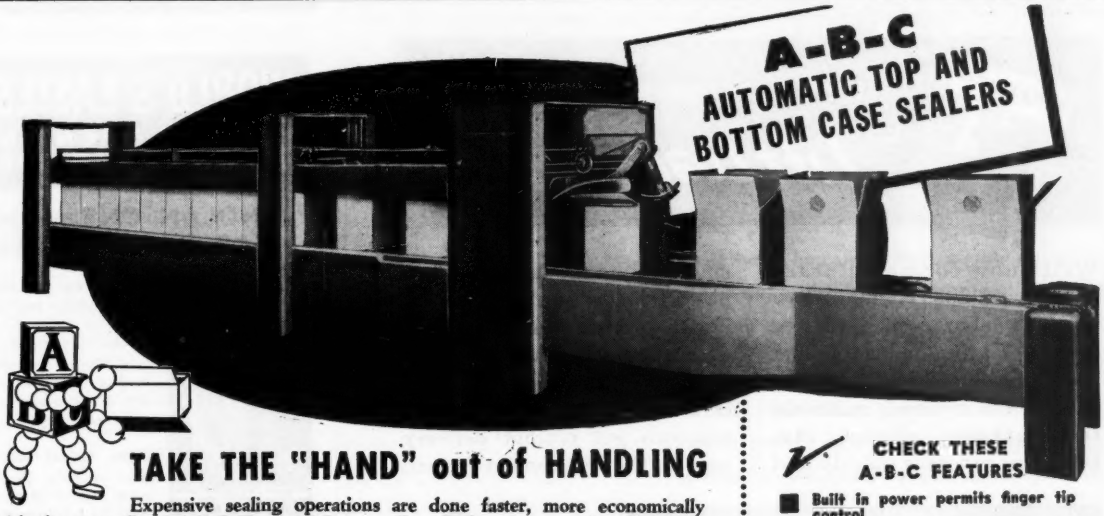
G. B. LEWIS CO.
612 Mont. Street • Watertown, Wisconsin

LEWIS
INDUSTRIAL CONTAINERS

Also Mfrs. of Airplane Propellers, Bee Ware, Venetian Blind Slats, and Golf Ball Washers



A-B-C
AUTOMATIC TOP AND BOTTOM CASE SEALERS



TAKE THE "HAND" out of HANDLING

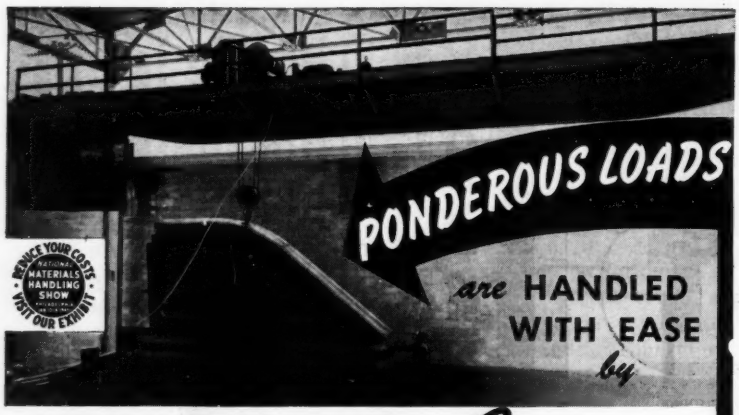
Expensive sealing operations are done faster, more economically with the streamlined A-B-C Top and Bottom Case Sealer. A recent installation in one plant saved $4000 the first year. Cases are sealed directly from the production line at speeds up to 60 cases per minute. It's all automatic. No operators required. Top inner flaps are tucked as bottom outer flaps are opened without disturbing contents of case. Glue is applied both top and bottom and outer flaps folded in place simultaneously. Compression unit with individual spring rollers applies even pressure to complete the sealing job. Unit can seal top flaps only or bottom flaps only. A-B-C specializes in building packaging machinery exclusively. Let an A-B-C specialist help solve your packaging problems. Write A-B-C PACKAGING MACHINE CORP., Dept. P6, Moberly, Mo.

CHECK THESE A-B-C FEATURES

- Built in power permits finger tip control
- Simple, sturdy construction for minimum down time . . . low maintenance cost
- Adjustable to wide range of case sizes by pressing a button
- Glue applicator and compression unit supported at 4 points for even pressure
- All main drives ball bearing equipped—geared head motors

A·B·C
PACKAGING MACHINE CORP.
MOBERLY, MISSOURI

OTHER A-B-C PRODUCTS
Automatic Top Sealer • Automatic Side Sealer • Semi-Automatic Bottom Sealer • Hand Gluer • Glass Container Case Packer



EUCLID *Cranes*

EUCLIDS give you *power* when you want it and *strength* where you need it with ease of precision control.

An impressive number of leaders in the heavy industries successively "repeat order" on EUCLID CRANES.

Quality is built into even the smallest parts to assure years of efficient, economical service.

EUCLID CRANES are available in sizes from 1/2 to 100 tons capacity and in spans up to 100 feet.

EUCLID CRANES AND HOISTS *Raise Profits*

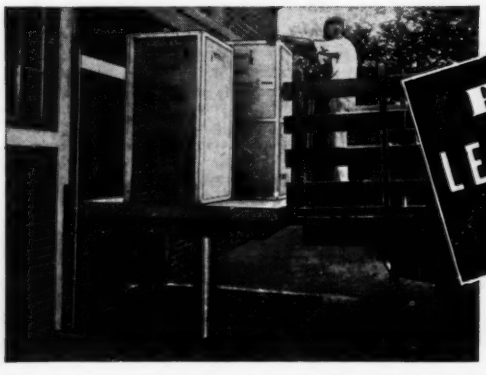
THE EUCLID CRANE & HOIST CO.

1362 CHARDON ROAD • EUCLID, OHIO

NEW CATALOG SHOWS HOW TO

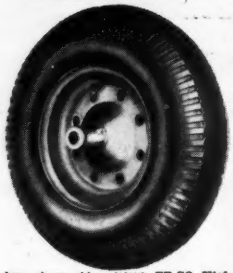
Lift Loads Faster!

Write now for new Rotary Catalog RE-202. It shows how to slash labor costs by using Levelator Lifts for loading and unloading jobs . . . **and for feeding and receiving materials from presses, shears, etc.** Levelator car rises quickly and smoothly as oil is forced into powerful hydraulic jack by simple electric pumping mechanism or compressed air. Operation safe, dependable, economical. Installation simple. And you can get prompt delivery now for the first time in 7 years.



ROTARY LIFT CO.
1160 Kansas
Memphis 2, Tenn.

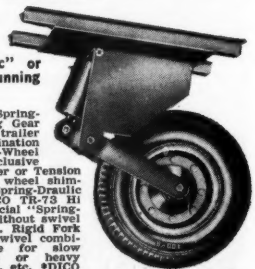
DICO* 400 X 8 WHEELS



There is a DICO Pneumatic - tired 4.00 x 8 wheel for practically every industrial use—and in a varied Price Range.

This DICO DC-303 is a remarkable 4.00 x 8 wheel for Wheelbarrow and other industrial use. Stamped from 14 gauge steel and of accurate, sturdy design. Separate welded-in seamless drawn steel hub available in variable lengths 4" to 7¼". Smooth running—"Zerk" fitted with ⅝" and ¾" roller bearings. DC Rim. Designed for low speed applications. Write concerning other bearing sizes. Also DICO TR-73 High Speed Trailer and W-74 Standard Industrial Wheels.

DICO "Spring - Draulic" or "Rigid" Fork Running Gears

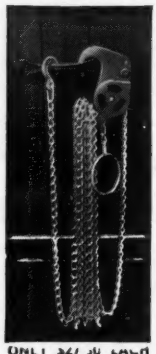


The DICO "Spring-Draulic" Running Gear for high speed trailer service is a combination of a DICO Fifth-Wheel Plate (with exclusive Adjustable Snubber or Tension Bar to eliminate wheel shimmy) and a DICO Spring-Draulic Fork with a DICO TR-73 Hi Speed Wheel. Special "Spring-Draulic" Forks without swivel for Boat Trailers. Rigid Fork or Fifth Wheel swivel combinations available for slow moving vehicles or heavy casters on dollies, etc. *DICO (pronounced DY-KO) is a name of QUALITY in the WHEELS of Industry. Write DICO MFG. CO. Division of—

DICO CORPORATION
404 S.W. 16TH ST., DES MOINES 5, IOWA

WORLD'S EASIEST WAY TO OPEN ANY BOX CAR DOOR*

NOLAN ONE MAN CAR DOOR OPENER



One man can open the most binding, balky box car door with the Nolan Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

• No strained muscles. No slips or falls. No broken arms, legs or mashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

Write for free descriptive literature.

ONLY $27.50 EACH
F. O. B. Bowerston

The Nolan Company
110 Pennsylvania Ave., Bowerston, Ohio

different heights, providing the bottle openings are uniform. As the containers move along, the caps are threaded by the machine and tightened.

The capped bottles feed onto a bottle conveyor and are turned 90 degrees by guide rails onto another three-inch belt line, which delivers to the labeling machine. Two manual transfer operations are performed in the labeling phase, and we feel that the job is done economically.

The labeled bottles continue on the belt to the packing table where two operators place 12 bottles into individual boxes. These containers are assembled and fed to the packing table by a separate operator. Another operator packs six individual boxes into the shipping container. The movement to the finished goods department is by hydraulic hand lift truck.

Through the processing and packaging methods outlined, six operators can fill and package from 1200 to 1400 dozen bottles of pepper in an average eight-hoor day.

NAVY CONFERENCE . . .

(Continued from page 35)

and steel strapping to form unit loads was emphasized.

The conference dramatically illustrated that although this country has returned to normal civilian activities, the problem of maintaining the steady flow of supplies to more than 1,000,000 men still in uniform, has if anything, gained in importance.

From an address by
REAR ADMIRAL E. D. FOSTER, SC, USN
Chief of the Bureau of Supplies and Accounts

A SIMPLE illustration will show you what 'reduction' progress we have made in material handling. Wherever possible we have strapped or otherwise secured material into 'unit' loads at the point of origin, whether it was the contractor's plant or a naval supply depot, and have carried that same 'unitized' load to its final destination.

Let us consider canned goods as a typical example. During the latter part of the war we got to the stage where we spent 203 man-hours of handling time to move 100 tons of canned goods. If we had done it on a 'loose' cargo basis, it would have required in excess of 682 man-hours. Hence, we realized a saving of 71%, or 479 man-hours, every time we handled 100 tons.

This process of mechanization introduced many new problems such as the need for modernizing and standardizing boxcar and refrigerator car design; the lack of standardization of controls and capacity rating for self-powered units of material handling equipment; the lack of sound preventive maintenance procedures for material handling equipment, etc. The Navy encounters many more problems as a result of operating approximately 167,000,000 gross sq. ft. of covered space, handling in excess of 10,000,000 tons of stores per year and operating a fleet of over 15,000 major units of material handling equipment.

NATIONAL MATERIALS HANDLING SHOW
PHILADELPHIA--JAN. 10-14, 1949
Reduce Your Costs

If your product is good enough to hold up its head in competitive marketing, it deserves a modern type of quality shipping container.

You will find your answer in SUPERSTRONGS - "Bound with Steel." These better boxes and crates are specially designed to cut costs, give greater protection, and increase packing and warehouse efficiency.

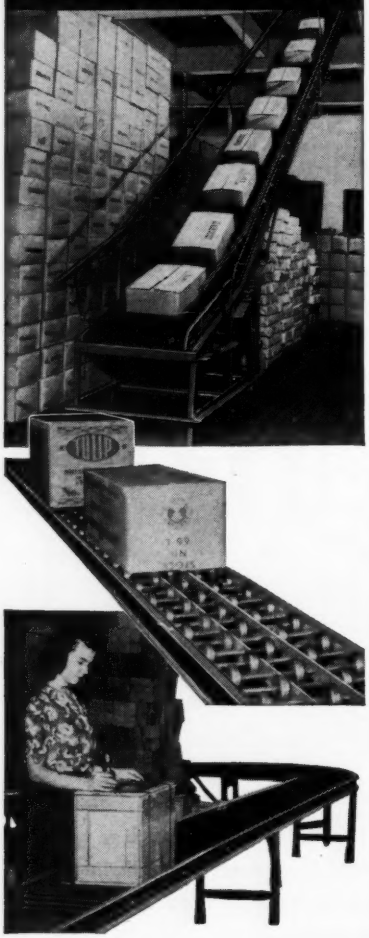
Write us for the full SUPERSTRONG story. We can probably help your shipping department, just as we have so many others.

SHIPPING SUPERSTRONG CONTAINERS
REG. U.S. PAT. OFF.

RATHBORNE, HAIR AND RIDGWAY COMPANY
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

FERGUSON

ENGINEERED CONVEYOR SYSTEMS

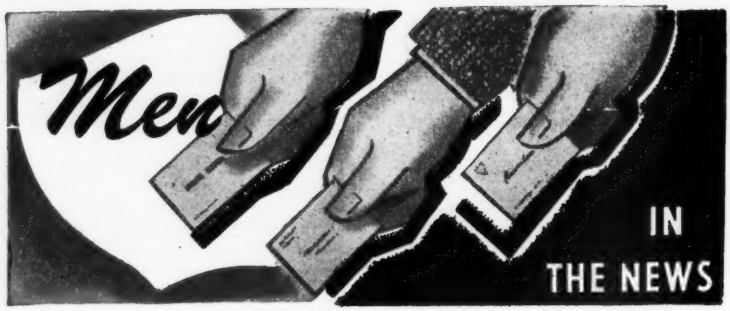


These time-saving, labor-aiding systems reduce materials handling costs and speed the movement of your packaged and unpackaged products from receiving docks through processing, storage and shipping areas. They are ruggedly constructed to give years of trouble-free service and designed for maximum efficiency with minimum maintenance. Write for detailed information.

HARRY J. FERGUSON CO.

WHEEL • PORTABLE BELT • BELT AND ROLLER GRAVITY CONVEYORS

121 WEST AVENUE, JENKINTOWN, PA.



FRANK T. KALAS, vice president in charge of sales and director of The Electric Storage Battery Co., has retired after 49 years of service. During his stay with Exide, Kalas was manager of automotive battery sales and at one time was manager of the company's Washington branch. Carl F. Norberg, vice president in charge of manufacturing, has been elected a director to fill the vacancy. Roland Whitehurst, former sales manager, has been elected vice president in charge of sales.

J. M. MOON, general sales manager of Signode Steel Strapping Co., has announced the appointment of A. J. Link as Chicago district sales manager. For the past seven years, Link has held the post of sales representative with headquarters in Indianapolis. He will now direct the company sales in Minnesota and Wisconsin in addition to the Chicago area.

CROSBY M. KELLY has been named director of advertising and sales promotion for the Rapids - Standard Co., Inc., according to James R. Sabastian, president. Kelly comes to the company after seven years with the Ford Motor Co. where he was director of the Ford merchandising school.

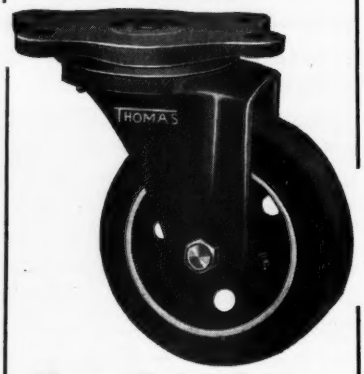
PAUL BRAINARD, former assistant supervisor of hoist design for the Hyster Co. has been named head of the newly created engineering standards department. This announcement was made by Al Zwald, chief engineer for the company. Ronald A. Johnson has been appointed assistant to Brainard.

RALPH M. HOFFMAN, president of Link-Belt Co., Pacific Division, was elected a vice-president of the parent Link-Belt Co. at the quarterly meeting of the board of directors. He continues as president of the pacific division, the position he has held since 1943.

L. J. KLINE, executive vice president, Mercury Mfg. Co. has named O. T. Henkle, Jr. as sales manager of the company. P. K. McCullough has been appointed assistant sales manager. Both men have been affiliated in production and sales capacities with the company for more than 15 years. Henkle will direct all sales operations, while McCullough will continue to handle the company's advertising and sales promotion activities.

CHAIN BELT CO. announces the opening of a new district sales office at 2900 West Clay St., Richmond 21, Va. Fred W. Taylor has been appointed district manager of this office. Taylor has been with the company since 1936.

THOMAS TRUCK of Keokuk



Heavy Duty Casters

- Double Ball Bearing Swivel
- Smooth face metal or Rubber Wheels
- Our largest selling caster

Easy spinning and rolling features these husky Thomas Truck casters. Side thrust is carried by the small row of balls against the solid part of top plate. All castings of strong semi-steel, designed for floor truck service. Ribbed forks. Grease gun fittings. Write for catalog. Thomas representatives in principal cities.

Thomas Truck & Caster Co.

3176 Mississippi River, Keokuk, Iowa

NEWS FROM THE SALES FIELD

OHIO EQUIPMENT CO., INC.: It has recently opened a new office in Mansfield, Ohio. James B. Cunningham, formerly associated with the Philadelphia Division of The Yale & Towne Mfg. Co., has been appointed manager. The company also announces that its branch office in Akron is now in new quarters at 247 E. Exchange St.

M. W. ROWELL, former executive director of the Committee on Small Business of the U. S. House of Representatives, and special consultant to the U. S. Senate on Small Business, has been named Washington, D. C. representative for Service Caster & Truck Corp.

MAILLER SEARLES, INC., San Francisco: This company has been appointed northern California representatives for the full line of Salsbury Turret Trucks. The line consists of platform lift, tractor, bulk cargo and pallet handling trucks.

HUBERT KAUB AND CO., Denver: This company has been appointed by the Electric Products Co., Cleveland, as agents. They are direct factory representatives covering the states of Colorado, Wyoming, Utah, New Mexico and El Paso County of Texas. Hubert and George Kaub head the company.

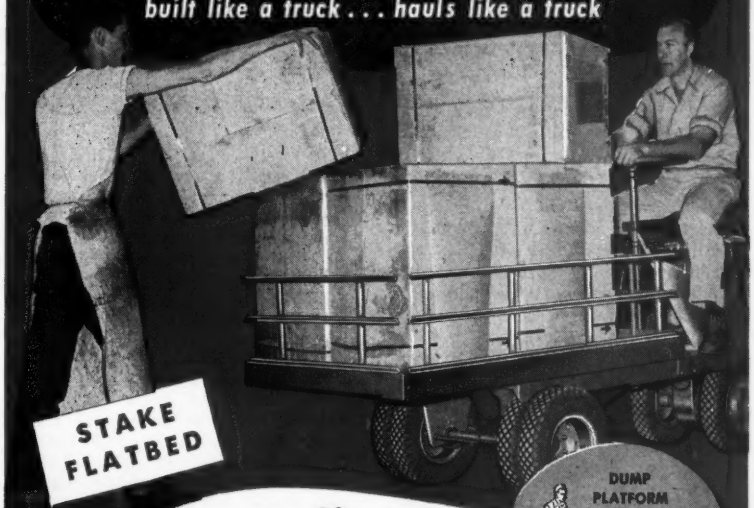
THE GEORGE HAISS MFG. CO. has named the following as representatives: for eastern Pennsylvania and southern New Jersey, H. D. Williams of Philadelphia; for northwestern New York and Pennsylvania, John F. Day of Buffalo; for the five boroughs of New York City, J. Benatar of Brooklyn. The three will handle the Haiss line of conveyors, and car unloaders and loaders.

THE BAKER Industrial Truck Division of the Baker-Raulang Co. has named the following as direct sales representatives: for southeast Texas, W. B. Landers, Houston; for southern Illinois and eastern Missouri, Fred R. Ramsen, St. Louis.

SHIPPING UTILITIES CO., St. Louis: This company has been named distributor for 36 counties of Missouri and 50 counties of Illinois by the Hyster Co., manufacturers of industrial trucks and tractor equipment.

200 or 2000 lbs... at 2 to 10 m.p.h.

built like a truck... hauls like a truck



STAKE FLATBED

DUMP PLATFORM

Save up to 40 man-hours per day with a

Whiteman Power Buggy

Simple, sturdy construction . . . low initial cost . . . easy maintenance. Plenty of power . . . 7½ H.P. . . . standard 4-cycle engine built to take heavy use day in and day out.

- Capacity, 200 lbs. or 12 cu. ft.
- Weighs only 660 pounds
- Full rotating drive mounting
- Forward or Reverse, 2 to 10 m.p.h.

UP 20% INCLINE WITH FULL LOAD

TURNS ON A DIME REVERSES

OR DUMP BUCKET

FOR MAINTENANCE and moving Bulk Materials . . . sand, gravel, bricks, wet concrete, castings or anything you can load in it. Controlled dump.

Whiteman MANUFACTURING CO.

WHITEMAN MANUFACTURING CO., 3249 Casitas Ave., Los Angeles 26, Calif.

Please send me literature and prices on the Whiteman Power Buggy.

NAME_____

COMPANY_____

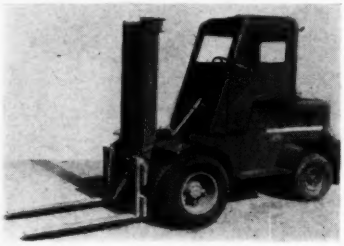
ADDRESS_____

CITY & STATE_____ F-10

NEW PRODUCTS

FORK TRUCK CAB

NP1—A weather-tight cab for driver protection can now be obtained for installation on the Yardlift-40 and Yardlift-60 models of Clark Equipment Co.'s pneumatic-tired fork trucks. The cab



is constructed of heavy-gauge sheet steel. Ample windows provide side and forward vision and the roof window is of glare-proof plastic, said to provide visibility for high tiering. Deluxe accessories include windshield wipers, heater and defrosters.

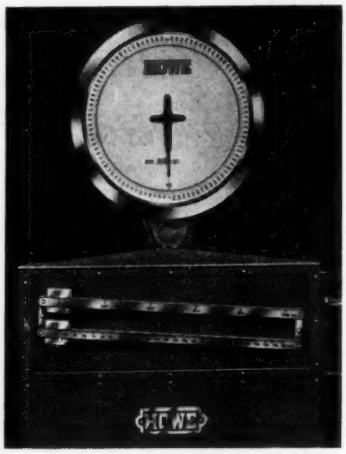
BATTERY CHARGER

NP2—A new automatic single-circuit motor-generator battery charger for motive power batteries has been an-

nounced by The Hertner Electric Co. Known as the Charg-O-Matic, it occupies less than four square feet of floor space and is portable. The control panel is set at an angle at desk-top level, providing easy reading and convenient operation. A pilot indicates when the set is on charge. It is further stated that it will charge a lead-acid battery in eight hours; a nickel-alkaline battery in seven hours.

DIAL SCALE

NP3—The Howe Scale Co. has announced its new Tape-Drive Cabinet Dial. This dial attachment has been developed for use with floor scales, industrial built-in scales, motor truck and tank scales, and all types of overhead



track and suspension scales. The main improvement is the incorporation of the new Howe tape-drive principle. This is a positive-drive mechanism, using high-strength, non-corrosive special alloy tapes to replace the rack and pinion. Four drop-weights can be put in or taken out of the weighing system, thereby changing the capacity of the scale by the equivalent of the dial chart for each drop weight added or subtracted.

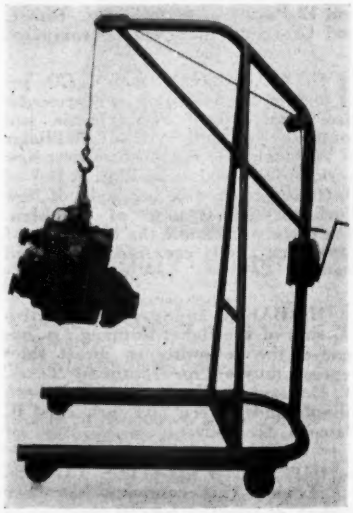
TIRE-MOUNTED CRANE

NP4—A new 45-ton capacity tire-mounted crane, said to be the world's largest of its kind, has been introduced by the Thew Shovel Co. It is designed for use in steel mills, steel erection, ship and bridge building, and in other industries where the handling of heavy materials is an essential operation. Weighing 65 tons, this model is 66'5" long (with boom in travel position over front of carrier); 11'7¾" wide, (outside to outside of tires); and 19'5"

high, with gantry erected. It is powered by two diesel engines, and travels up to speeds of 18 miles per hour.

PORTABLE SHOP CRANES

NP5—Portable shop cranes designed for handling motors, engines, castings, etc., are available from Grand Specialties Co. Models have ranges of lift up to 7', 8'6", and 10'8" and elevate weights up to 3000, 4000 and 7000 lbs. Mobile in any direction, the winch crank is turned clockwise to lift the load, counter-clockwise to lower it — seven

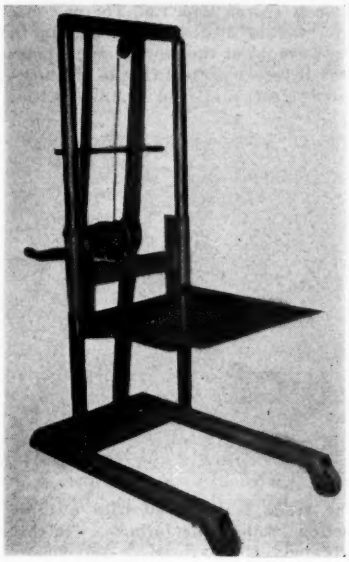


turns of the crank lifts the load approximately one foot. When the crank-turn

is stopped, the load is held in that position.

PORTABLE ELEVATOR

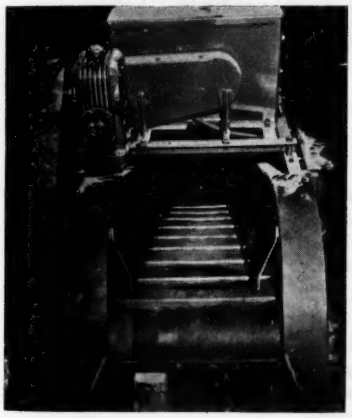
NP6—Montgomery & Co., Inc. have introduced a portable elevator, available in all capacities for both hand and electric operation. Included among its features are three-speed handle adjust-



able for light, medium and heavy loads; self-locking safety-type switch; frame of mechanical tubing; and easily-operated floor lock. The model is 25" x 39" x 69". Platform may be raised from six to 53 inches.

RAILROAD CAR UNLOADER

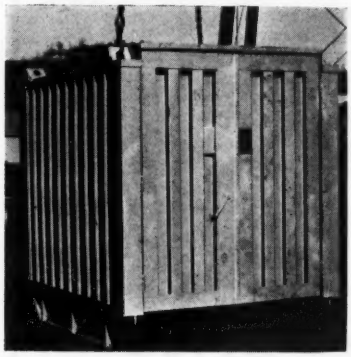
NP7—A new railroad car unloader, Model 358, has been developed by the Barber-Greene Co. Featuring a com-



pact conveyor drive mechanism, it is designed for unloading both abrasive and non-abrasive materials from hopper-bottom cars. Driven through a standard speed reducer, it is possible to start the conveyor under a full load of material, according to the release. Used with a five h.p. gasoline engine, the reducer furnishes a 10 to 1 reduction for the model.

MARINE SHIPPING CONTAINER

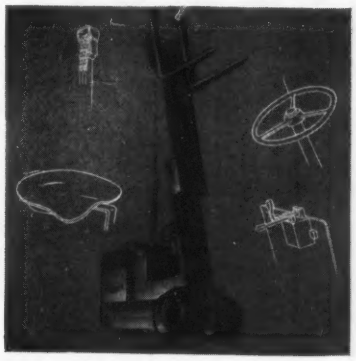
NP8—Designed to eliminate pilferage, minimize breakage and reduce packaging and handling costs in marine



transportation, is a shipping container manufactured by the Dravo Corp. Models are available with skids, or four folding or stationary legs. Crane lugs are provided for loading and unloading by ship's gear.

FORK TRUCK

NP9—A low-cost electric fork truck has been added to the Transporter line by the Automatic Transportation Co. The model is named the Transrider. Included among its features are: drive on the load wheels; high pressure hydraulics; automotive-type controls, including foot brake and accelerator;



dead man control; road clearance ample for boxcar loading and severe ramp conditions; and simultaneous lifting, tilting and driving. It is able to lift its load to 130 inches and has a capacity up to 3000 lbs.

FLOOR PATCH

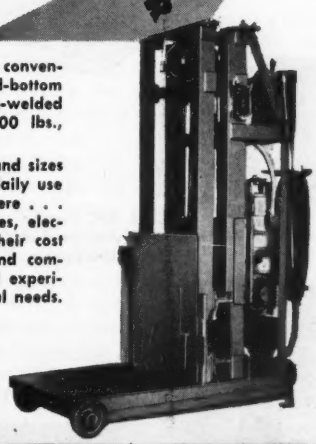
NP10—United Laboratories, Inc. announces Tampatch, a product designed for high-speed repair of concrete floors. It may be applied to broken, rough or uneven concrete surfaces, interior or exterior. It is claimed that it will with-

PUT THIS "Weld-Bilt" ELECTRIC PORTABLE ELEVATOR To Work for YOUR Profit . . .

• Saves Valuable Floor Space
• Increases Production Space
• Improves Storage Facilities

Here's a husky "prime mover" for efficient vertical materials handling and storage in your shop or warehouse. It's the dependable WELD-BILT Electric Single Telescopic Portable Elevator, with motive power controlled by convenient push-button and automatic top-and-bottom electric limit switches. Wide, steel arc-welded frame. Capacities from 500 lbs. to 4000 lbs., and lifting heights from 4 ft. up.

This is only one of many different types and sizes of WELD-BILT Elevators installed and in daily use in hundreds of industrial plants everywhere . . . single or double telescopic or hinged types, electrically or hand operated. They'll save their cost in your plant, too. Write for catalog and complete details—or for recommendations of experienced WELD-BILT engineers on your special needs.



"Weld-Bilt" PRODUCTS

WELD-BILT Products include: Hydraulic Lift Trucks • Pallet Trucks • Platform Trucks • Two-Wheel Trucks • Skid Platforms • Tiering Machines

WEST BEND EQUIPMENT CORPORATION
241-9 Water Street, West Bend, Wisconsin
MATERIALS HANDLING ENGINEERS

FLOOR TRUCKS

STANDARD AND SPECIAL

WE INVITE YOU TO VISIT US AT BOOTH NO. 622
AT THE MATERIALS HANDLING EXPOSITION
IN PHILADELPHIA, JAN. 10TH TO 14TH

WHEELS: Metal - Rubber - Pneumatic

KEEP LOADS ALIVE

MEMBER CASTER AND FLOOR TRUCK MANUFACTURERS' ASSOCIATION

We take pride in our product and guarantee satisfactory performance and sturdy, long time operation under the most severe use. Agencies in most principal cities. Catalog gladly furnished upon request. Repeat orders testify to the efficiency of our trucks.

MAIN OFFICE AND FACTORY

ORANGEVILLE MFG. CO.

"Established 1879"

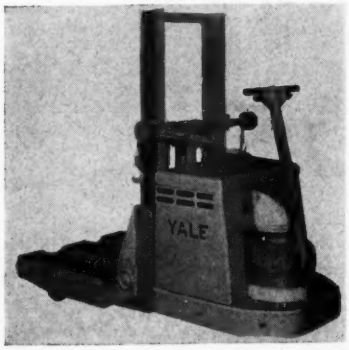
ORANGEVILLE 1, PENNA.

FLOOR TRUCKS ORANGEVILLE

stand heavy traffic loads, and the floor may be placed in service almost immediately after repairs have been made. The product is delivered in complete ready-mixed form, ready to use.

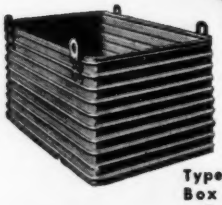
DIE LOADER TRUCK

NP11—A new 4000 lb. capacity Worksaver designed for handling heavy dies and molds is being offered by the Yale & Towne Mfg. Co. The new electric "walkie" is designed to pick up the die or mold at the storage zone, transport it to the press, lift it to the necessary height, and load it into position.

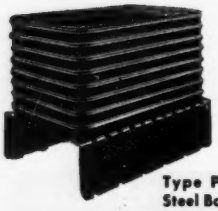


The truck is equipped with a three-section roller platform, a ratchet-actuated cable-and-sheave self-loading arrangement, and a high-lift mechanism. The ratchet handle at the front

HEADQUARTERS FOR MATERIALS HANDLING EQUIPMENT



Type B-80C Truscon Box Equipped for Crane Handling.

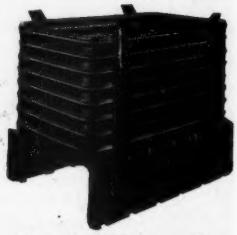


Type PB-120 Truscon Steel Box and Platform.

THE SUCCESS of modern production methods depends upon the efficiency with which materials and products in various stages of fabrication can be handled.

Truscon's Pressed Steel Division—nationally known for the quality of its products and the dependability of its service—is fully equipped and prepared to handle your materal handling equipment requirements. The Pressed Steel Division's central location, moreover, assures efficient service for all your needs.

TRUSCON
MATERIALS HANDLING EQUIPMENT



Type PB-120L Truscon Box and Platform with full length lifting lugs.

Write for free catalog describing the complete line of Truscon Steel Boxes and Steel Skids.

TRUSCON STEEL COMPANY • Pressed Steel Div., 6202 Truscon Ave., Cleveland 4, O., *Subsidiary of Republic Steel Corp.*

of the truck is designed for manipulation in narrow quarters.

WAREHOUSE TRACTOR

NP12—The Salsbury Corp. has announced a new model Lo-Bed warehouse tractor with 36-inch turning radius designed for assembly line method of order filling. For use by wholesalers and distributors of food, dry goods, hardware and automobile parts, and accessories manufacturers, it is adapted

for walking or riding. Waist-height finger-tip control permits speed from creeping to eight miles per hour, with train attached. Other features include automatic coupler release pedal, hand brake, and safety handlebar. The 1350-pound model is motivated by a turret-power unit mounted in the chassis.

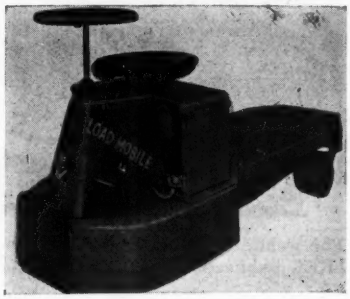
FORK FOR CONCRETE BLOCKS

NP13—Concrete block handling forks for use with power fork trucks have been brought out by Lewis-Shepard Products Inc. Three tapered forks of heat-treated high-carbon steel are so spaced across the width of the truck's elevating carriage that they can enter the core of the bottom layer of blocks of the cube. The forks are curved over the upper surfaces to fit the rounded wall of the core holes. By adding slip-on shoes of suitable length to the two

outer forks, both green and cured blocks may be safely transported, according to the company. The attachment may be removed in a matter of minutes, it is stated, to allow installation of conventional forks or other attachments.

LOAD MOBILE

NP14—A rider-controlled electric lift truck, the Load Mobile, is in production by the Market Forge Co. It is said to be simple to operate and maneuverable under all conditions. The model can be handled in one of three ways: where the operator must be on and off the truck

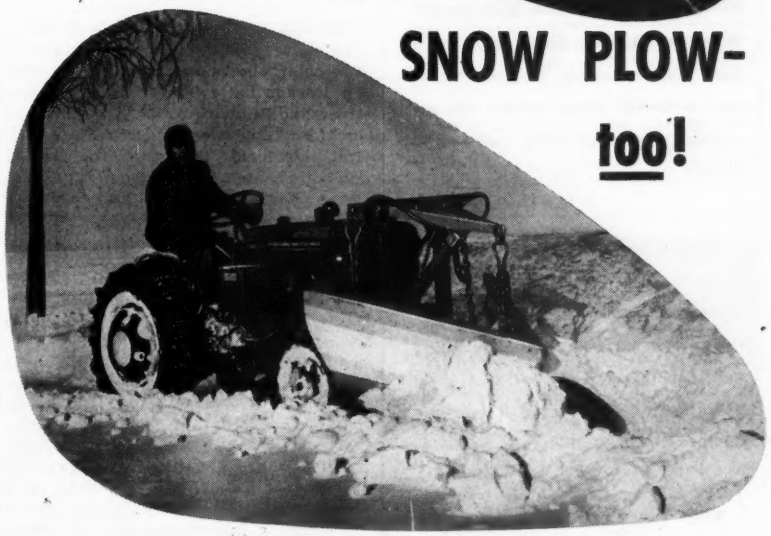


quickly and conveniently, a folding step is provided. When the operator finds it convenient to face away from the load, a swivel seat is used. When he desires to face the load, he may ride in the normal way. The unit is available in 3000 and 4000-pound capacities.

FLAT-BED WAREHOUSE TRUCK

NP15—Garrick Industries, Inc. has developed an all-steel flat-bed warehouse truck designed for mechanized or manual handling. The bed is of 10-gauge steel, and has five supporting cross bars under the bed to prevent bellying or sagging. It is stated that the rear hitch, surrounded by a steel guard rail, prevents punching and accidental damaging of packages or goods with which it might come in contact.

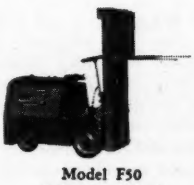
the versatile SHOP MULE is a SNOW PLOW- too!



Get *extra* use from versatile Shop Mules during winter! Two easily mounted snow plow attachments, the V-type pictured and the reversible straight blade fit all Shop Mule models except the 3-wheel model. Will clear a path 5 feet wide *quickly*, saving valuable time.

Just one of the many reasons why International Harvester powered Shop Mules are preferred in 73 Industrial Fields is that *there are 172 warehouses for Shop Mule parts.* That's why service is so much faster on normal replacements than for any other industrial tractor. Think of the savings in down time alone.

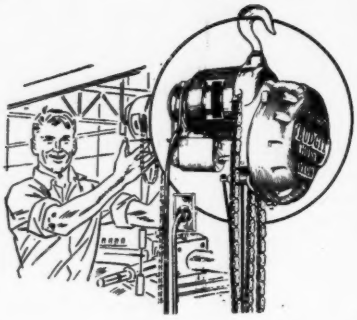
Now is the time to order a snow plow attachment for your present Shop Mule. If you do not, as yet, use a Shop Mule, send for specifications and operating data showing how Shop Mules and Shop Mulifts can help solve *your* problems. Just tear out this ad and mail with your letterhead and name—today!



Model F50
SHOP MULIFT

W. F. HEBARD & CO. 336 WEST 37TH STREET CHICAGO 9, ILLINOIS
Division of The BUDA Company

SHOP MULE INDUSTRIAL TRACTORS



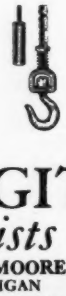
Lifts profits, too!

Just put a portable 'Budgit' Electric Hoist to work lifting and handling loads on your production, assembly, and inspection lines. You'll notice from the first lift how much faster the work moves along. How each worker increases his production, when freed from back-breaking manual lifting. How a 'Budgit' Hoist lowers risk insurance, operating costs, and — lifts profits!

'Budgit' Electric Hoists can be put to work as soon as they're delivered. There's no installation cost, no accessories to buy. They're complete lifting units in themselves. Just hang up your 'Budgit' Hoist, plug it into the nearest electric socket, and use!

Why not check your plant for places where manual lifting slows up production, then put in a fast, easy-action 'Budgit' Hoist to do all your lifting of heavy loads?

Made in sizes to lift 250, 500, 1,000, 2,000, and 4,000 pounds. Prices start at $119.00. Write for Bulletin No. 371.

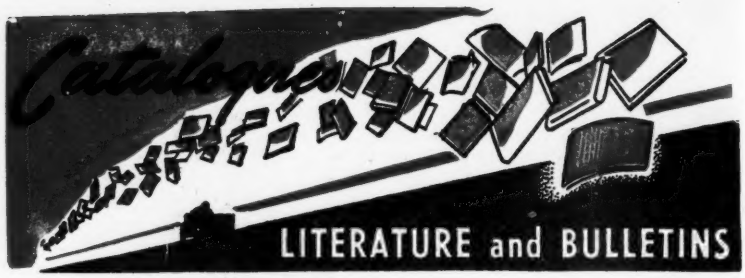


MAXWELL MANNING MOORE TRADE MARK

'BUDGIT' *Hoists*

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of Ashcroft Gauges, Hancock Valves, Consolidated Safety and Relief Valves and 'American' industrial instruments.



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Material Handling Equipment . . . Junior Catalog 487 has been released by the Barrett-Cravens Co. The tenth edition of the pocket-size catalog contains illustrations and comprehensive information on the entire Barrett line of material handling equipment. Included are hand, hydraulic and electric lift trucks; pallet trucks; skids; stacking frames; lifting and die tables; hoists; elevators; portable cranes; and hand trucks.

26—Batteries . . . The Gould Storage Battery Corp. has released a new two-color eight-page technical bulletin on storage batteries for mine locomotives and shuttle cars. The literature includes illustrations, descriptions and full technical data on the Gould "Thrifty" and "Kathanode"-type batteries. Exploded views show every construction feature.

27—Carton Stitching . . . Profit by Stitching, a new booklet illustrating the complete line of Acme and Acme-Morrison Silverstitchers, is available from the Acme Steel Co. The models are designed for stitching solid fibre and corrugated shipping containers. Also included are specifications and appplication photos.

28—Bottle Labeling . . . Successful Bottle Labeling is the title of a booklet issued by National Adhesives. It contains information on the selection of the proper type of adhesive for applying all types of labels to glass surfaces. Chapters are devoted to such subjects as Methods of Labeling, Selections of Labels, Container Design, Handling of Adhesives, Regulation and Care of Machines and other similar subjects of interest to bottlers.

29—Industrial Wheels . . . The Kayel Products Corp. is offering a four-page, two-color pamphlet illustrating and describing its line of industrial wheels. They are designed for use with platform trucks, manual and motorized hand trucks, dollies and others. Engineering data and specifications are included.

30—Stacking and Nesting Boxes . . . A folder is available from Convoy, Inc. Included are pictures and descriptions of trays, boxes with lids, and specially made containers. Detailed description and advantages are featured.

31—Bulkhead Anchors . . . From The Crowe Engineering Co. a brochure describing its Jiffy Bulkhead Anchor. Designed for supporting LCL shipments, they are so constructed that one size can be used in all widths of freight cars. It is said that they are able to withstand impact of seven to nine miles per hour protecting 20,000 to 25,000 lbs.

32—Automatic Material Racks . . . The American Machine & Foundry Co. is offering a catalog illustrating and describing its new automatic material racks. Designed for machine operations, progressive assembly, storage and transporting of materials, these spring-powered racks hold a visible bank of material and bring each piece to the operator's hand level as soon as the preceding piece has been removed. To reload, the material is placed on the platform and automatically finds its proper level. Lifting power is a calibrated spring mechanism. Operating features and industrial applications are included with pictures.

33—Load Cell . . . From the Baldwin Locomotive Works, a two-color catalog picturing and describing its SR-4 Load Cell. The unit translates changes in weight into changes in electrical energy. It may be used for tank weighing when the tank is permanently mounted on load cells. Full explanations of the unit, industrial applications and advantages, and sppecifications are included.

34—Pallet Handling . . . The Yale & Towne Mfg. Co. has released a two-color, 20-page bulletin on pallet-systems application, hand lift and work-saver pallet truck models, and recommended pallet design. Included are pictures illustrating uses of the pallet system, together with cutaway shots and detailed description of material handling equipment.

35—Telescopic Conveyors . . . From The Wilkie Co. a booklet describing its line of telescopic and standard gravity wheel conveyors. Case histories with action photos, specifications and operating features are given.

36—Baskets and Trucks . . . From C. R. Daniels, Inc., a brochure illustrating and describing its line of baskets, hampers and trucks. Units discussed are widely adaptable to factory production, distributing, and handling procedures in varied industries.

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates for "Positions Wanted" $4.00 minimum for 25 words, each additional word 10c; bold-minimum, limit 25 words. For all other face type or all capitals, $7.50 minimum for 25 words, each additional word 15c; limit 50 words. Box addresses count as five words. All insertions are payable in advance.

These classified columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These columns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

USED EQUIPMENT WANTED

WANTED
FORK-LIFT TRUCKS
CRANE KARS
We Pay High Prices
For Used Material Handling Equipment
A & A MACHINERY CORP.
1267 Flushing Ave., Brooklyn, N. Y.
Hyacinth 7-3331

OPPORTUNITIES USED EQUIPMENT WANTED

Want any quantity of new or used 2 and 4 wheel Rubber Tired Hand Trucks, Hand Operated Lift Trucks and Stackers. We buy Factory, Counting and Platform Scales in any condition.

Security Scale Works
718 W. Randolph St.
Chicago 6, Illinois

FOR SALE

Cleveland Tramrail carrier system complete or in parts, including four three truck carrier trains, motor generator set, three switches, approximately 1100 feet of track and platform trucks used with tram cars. Size 54 x 40 x 11 hardwood tops, angle iron bound with forty-inch high iron push rail. Roller bearing stationary wheels at one end swivel ball bearing casters at the other. Box 12348.

Clark High Telescopic Tilting Gas Powered Loader, 5000 lbs. capacity, 17 foot lift, wide axle, equipped with condensing muffler and protective driver shield. Practically new; moderately priced. Box 11548, Flow.

Two (2) AUTOMATIC Transporters Model TW-4972 with Exide batteries. Have never been in service. Box 11648.

LINES WANTED

We will soon start a large sales program with mailings, advertising, etc. and would like to have additional lines to represent in the Chicago area. Exclusive dealership preferred. Box 12548, Flow.

POSITIONS WANTED

Over 25 years of merchandise warehousing and marine terminal operation experience in executive capacity. Location secondary with good progressive establishment with post war expansion plans. Can furnish unquestionable references of past business career and achievements. Have just completed contract with large merchandise warehouse organization as vice president and general manager. Also vast experience in industrial development work and cartage. Box 12248, Flow.

HELP WANTED

Traffic Manager: No limit on salary. Large Eastern Distributor requires man not interested in desk job. Must have practical knowledge of rail & truck shipping problems. State age, experience, salary expected etc. Reply Box 12448.

MANUFACTURERS WANTED

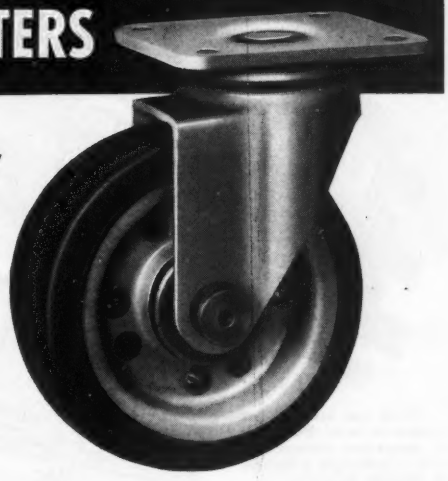
MANUFACTURING LICENSE AVAILABLE

Mfg. patent holder of proven vibrating conveyor and elevating system wishes to license responsible firm to manufacture and sell under these patents. The designs are backed by 30 yrs. of successful commercial design and are without question the simplest and most versatile in their field. The elevator is unique in its compactness employing no chains, drags, buckets, etc. The conveyor and elevator are correlated units and are designed for simplicity of mfg. and competitive sales. Box 12148, Flow.

DISTRIBUTORS WANTED

Distributors wanted for territories in Eastern Connecticut, New York, (including New York City), Southern New Jersey, Pennsylvania, Maryland, and Delaware. Standard line of new design belt conveyors. No inventory required. Must have minimum of 5 man sales force. Conveyors manufactured in New England. Box 12648.

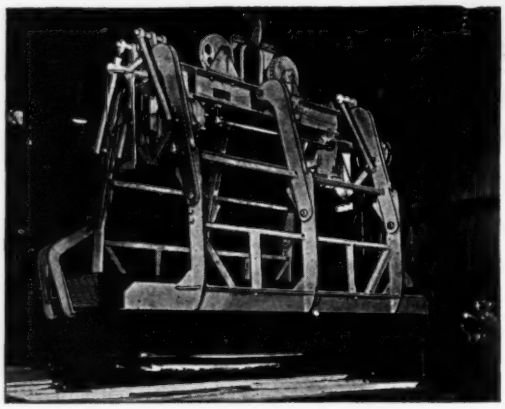
One of 1458 LOAD-FLOATING WORK-SAVING Colson CASTERS



To meet every need exactly, there are 1458 different standard designs of Colson casters—many of them continuously stocked for immediate shipment. Long notable for quality that has made them the replacement choice of industry, they offer you big dividends in faster handling, easier work and reduced floor damage. It pays you to get the facts—write today for free 68 page catalog.

Model No. 3-527-65 swivel fork caster, ideal for use on medium weight industrial equipment. Double row of ball-bearings in hardened raceways; heavy oversize king bolt, patented lock nut. Built for years of rugged service.

THE COLSON CORPORATION
ELYRIA, OHIO
CASTERS • • LIFT JACK SYSTEMS • • INDUSTRIAL TRUCKS



You can produce only as much as you can handle

WHEN you use C-F Sheet Lifters to load, carry and unload loose or bundled sheets in and out of storage, you keep no machine or operator idle, waiting for material.

C-F Lifters provide a faster, safer and more economical method of handling sheet stock because they carry more sheets per load, have a tong action that grips loads tightly, preventing stock slippage or sag, yet design features such as wide bearing surfaces give full protection to stock edges. One man end or remote cab control keeps operator away from sides—stock can be loaded or unloaded in close quarters with resulting savings in storage room.

Jaw controlling mechanism provides infinite adjustments from minimum to maximum widths. Control is fast, positive. C-F Lifters have standard and optional equipment that will exactly meet any materials handling requirements you may have. Lifters are available in capacities from 2 to 60 tons or larger, in standard or semi-special designs. Write for new illustrated Bulletin—just off the press.

CULLEN-FRIESTEDT CO., CHICAGO 23, ILL.

1320 South Kilbourn Avenue — Chicago, Illinois

The *TROJAN TRACTOR* can be applied to *TRAVEL* . . .

1. Present hand travelled monorail hoists.
2. Existing hand travelled crane bridges.
3. Monorail conveyor lines.
4. Open and Close garage and hangar doors.

You probably have slow, hand propelled units which the Trojan Tractor can move by power,—faster and economically. Let us know what they are; we will give you the details.

DETROIT HOIST & MACHINE CO.

8216 MORROW ST.
DETROIT 11, MICH.

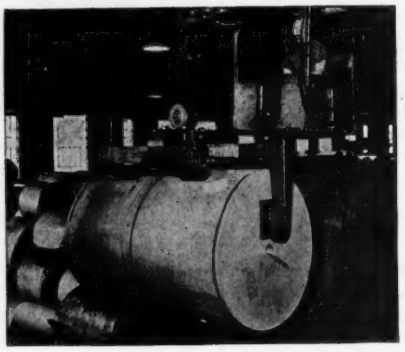
Tramp Iron can and does cost a lot of Money! It causes Fires and Explosions . . . it Damages or Destroys Valuable Machinery.

Eliminate your "TRAMP-METAL" before or during processing with HOMER "non-electric", Permanent Plate Type or Pulley Magnetic Separators. HOMERS are PERMANENT . . . they require no wires or electrical accessories and are "self-insulating" when mounted on conductive material. Write for bulletins today.

PRODUCERS OF MAGNETIC SEPARATOR EQUIPMENT SINCE 1923

The HOMER Manufacturing Co., Inc.
DEPT. I-11
LIMA · · · OHIO
PERMANENT MAGNETIC SEPARATORS — PLATE TYPES AND PULLEYS

PAPER HANDLING



Save Money In Your Roll Pits

Men climbing over rolls in roll pits slow up your crane. Get full performance by using Mansaver Grabs. Your roll pit can then feed machines faster, eliminating idle machines and machine rooms crowded with reserve rolls.

Hand-operated Grabs supplied when paper is not handled in large volume. See models at Materials Handling Show, Booth 14.

COMPLETE YOUR CRANES WITH MANSAVER GRABS

MANSAVER INDUSTRIES, INC., 3103 EAST ST., NEW HAVEN, CONN.

The
"LITTLE HUSTLER"
TRANSFERS STAMPINGS AS FAST AS PRODUCED!

The "Little Hustler" is fully portable and quickly adjustable to a wide range of applications. The 8 foot size shown above has a maximum delivery height of 81 inches at 45° and 50 inches in a horizontal position. Made in 13 models: 4-6-8-10 and 12 ft. long, by 12", 18" or 24" wide. Also special sizes. Send for circular LHC. We design and manufacture permanent conveyor systems and all types of SPECIAL EQUIPMENT

MAY-FRAN
ENGINEERING, INC.
Development Engineering and Manufacturing
1710 Clarkstone Rd Cleveland 12, Ohio

FINANCING . . .
(Continued from page 17)

the required machines. Therefore, a financing plan, set up to coincide with their needs and anticipated income, would provide the necessary funds without impairing their working capital.

The logical result of such an arrangement would show that the equipment not only pays for itself, but earns a good profit besides. This is typical of the benefits derived when income-producing machinery and equipment is paid for out of income and is a fine example of the adage that "You Have To Spend Money To Make Money." It is particularly appropriate to the field of material handling.

Any responsible concern, anxious to purchase equipment but desirous of conserving its working funds, need have no hesitancy in seeking credit either from a qualified financing organization or any reputable suppliers with whom they transact business.

LANHAM
FOR
LIFETIME
THE STEEL BOUND SKID PLATFORM

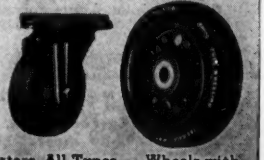
with the
RE-NU TOP

Renewable hardwood deck bound in heavy steel angles, clamped with ½" steel bolts. Can be used with all makes hand or power lift trucks. Designed to fit YOUR job with capacities from 500 to 20,000 pounds. Plain or armored ends. Stake pockets, crane hooks, special racks and bins available.

THE LANHAM COMPANY
12TH AND MAGNOLIA
LOUISVILLE 10, KENTUCKY

FIG. 16-24 Two-Wheel Trucks for Every Use

FIG. 419-421 Jack and Live Skid



Casters, All Types. Light, Medium, Heavy Duty

Wheels with Demountable Rubber Tires

Ask Nutting Engineers

FOR ADVICE ON MATERIALS HANDLING

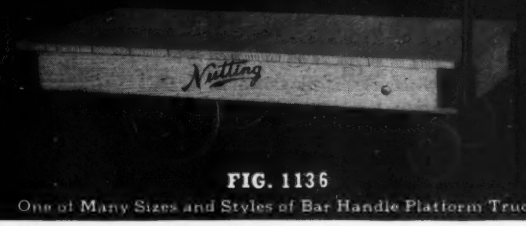


FIG. 1136
One of Many Sizes and Styles of Bar Handle Platform Trucks

NOW is the time to Engineer your Materials Handling

Your materials handling system needs to be just as carefully planned and engineered as your production set-up, or the design of your products. A planned layout may well be the difference between profit and loss, between smooth-flowing operation and a time-wasting series of bottlenecks. Take advantage of the seasoned experience and valuable advice of a Nutting Engineer. Because the all-around adaptability and versatility of Nutting Trucks has never been excelled, he can advise you on the proper use of trucks with overhead or floor conveyors . . . assembly or production line use . . . interdepartmental use . . . warehouse or shipping room use . . . as well as situations where only trucks should be used.

LOOK in your *Classified Telephone Directory* to contact your nearest Nutting Sales Engineer, or write to us direct. Ask for Bulletin 48-G.

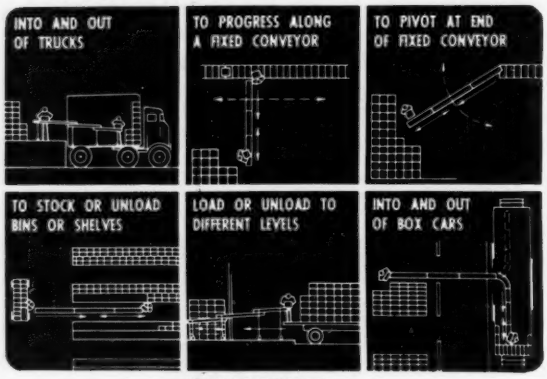
Over 1000 Nutting Designs

56 years of specialized, continuous experience in building materials handling equipment is embodied in the Nutting line for your benefit. We supply every need in floor trucks, casters, wheels—including specially designed trucks for specific needs.

NUTTING TRUCK & CASTER COMPANY
1602 DIVISION STREET WEST, FARIBAULT, MINNESOTA

our **57th Year**

SAVE 6 WAYS


INTO AND OUT OF TRUCKS
TO PROGRESS ALONG A FIXED CONVEYOR
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TO STOCK OR UNLOAD BINS OR SHELVES
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PORTABLE - *to move in a minute.*
Quickly rolled from one job to another and locked in position.

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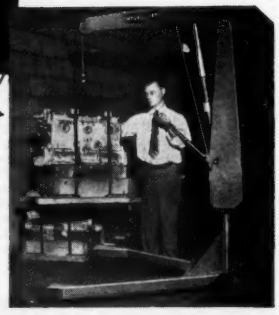

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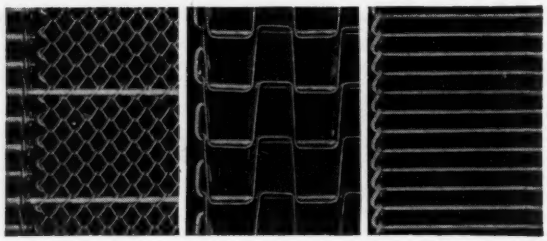

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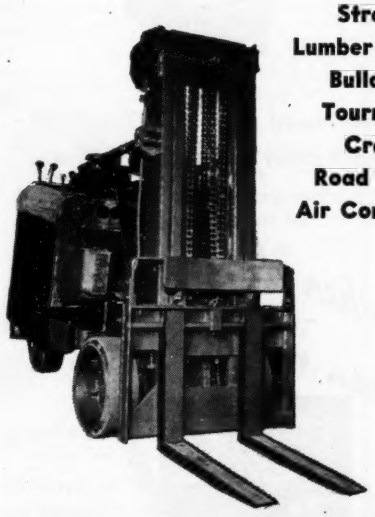

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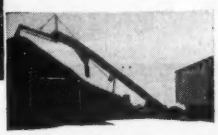

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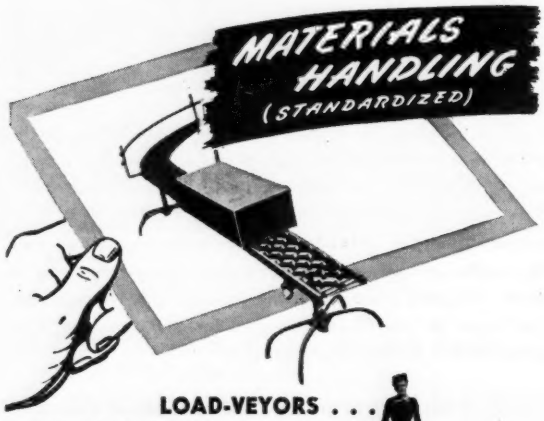

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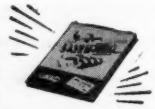

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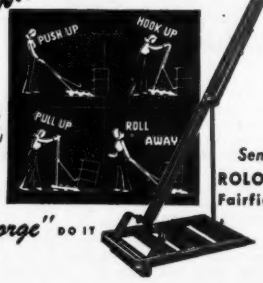

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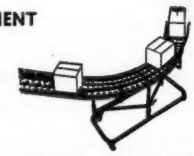

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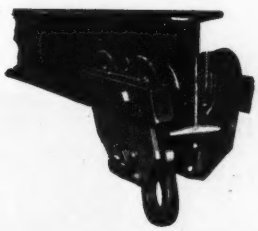

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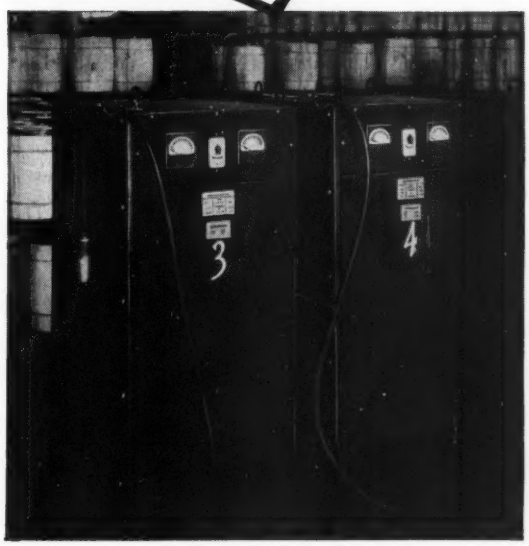

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